TC-K501R/K501ES

SERVICE MANUAL

TC-K501R:
US Model
Canadian Model
AEP Model
TC-K501ES:
E Model

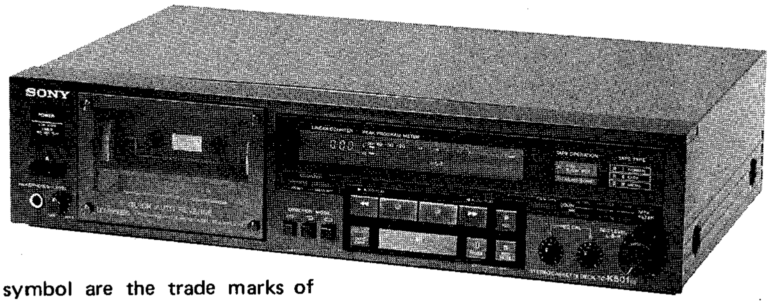

PHOTO : TC-K501ES

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SPECIFICATIONS

Recording system
4-track 2-channel stereo

Fast-forward and rewind time
Approx. 90 sec. (with C-60 cassette)

Bias frequency 105 kHz

Signal-to-noise ratio (NAB, at peak level)

Dolby NR switch Cassette	OFF	B-TYPE ON	C-TYPE ON
TYPE IV (Sony METAL-ES)	59 dB	66 dB	72 dB
TYPE II (Sony UCX)	58 dB	65 dB	71 dB
TYPE I (Sony HF-S)	54 dB	61 dB	67 dB

Total harmonic distortion
1.0% (with Sony METAL-ES cassette)

Frequency response
DOLBY NR OFF
- With TYPE IV cassette (Sony METAL-ES)
  20 - 19,000 Hz
  30 - 17,000 Hz (±3 dB)
  30 - 13,000 Hz (±3 dB, 0 VU recording)
  30 - 17,000 Hz (DIN)
- With TYPE II cassette (Sony UCX)
  20 - 19,000 Hz
  30 - 17,000 Hz (±3 dB)
  30 - 17,000 Hz (DIN)
- With TYPE I cassette (Sony HF-S)
  20 - 17,000 Hz
  30 - 15,000 Hz (DIN)

Tape Transport Mechanism Type	TCM110R3

Wow and flutter 0.04% WRMS (NAB)
±0.14% (DIN)

Inputs Line inputs (phono jacks)
Sensitivity 77.5 mV (−20 dB)
Input impedance 50 kilohms

Outputs Line outputs (phono jacks)
Rated output level 0.44 V (−5 dB) at load impedance 50 kilohms
Load impedance over 10 kilohms
Headphone output (stereo phone jack)
Output level variable from −20 dB to −50 dB at a load impedance of 8 ohms

— Continued page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

MICROFILM

STEREO CASSETTE DECK

SONY®

TC

General

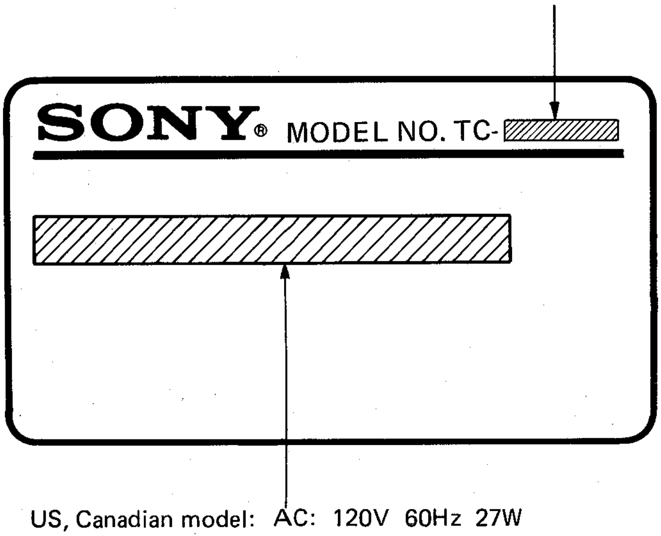
Power requirements	AEP model: 220 V ac, 50/60 Hz (240 V ac adjustable by authorized Sony personnel) US, Canadian model: 120 V, 60 Hz E model: 120, 220 or 240 V ac adjustable, 50/60 Hz
Power consumption	27 watts
Dimensions	Approx. 430 × 105 × 275 mm (w/h/d) (17 × $4\frac{1}{4}$ × $10\frac{7}{8}$ inches) including projecting parts and controls
Weight	Approx. 6.2 kg (13 lbs 11 oz)
Supplied accessories	Connecting cord (2) Remote control cord (1)

0dB = 0.775V

MODEL IDENTIFICATION

– Specification Label –

US, Canadian, AEP, G-AEP model: K501R
E model: K501ES



US, Canadian model: AC: 120V 60Hz 27W
AEP, G-AEP model: AC: 220V ~ 50/60Hz 27W
E model: AC: 120, 220, 240V ~ 50/60Hz 27W

SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

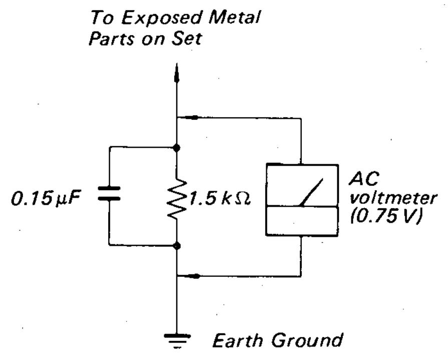


Fig. A. Using an AC voltmeter to check AC leakage.

FEATURES

Auto-reverse recording and playback
The roto-bilateral head assures the same performance characteristics in either tape transport direction.
When the tape reaches its end, the roto-bilateral record/playback head reverses position and the other side of the cassette will be recorded or played back automaticaly.

Excellent sound quality
The record/playback head is made of a laser amorphous magnetic alloy using LC-OFC* winding. This highly durable head provides a wider dynamic range and a more extended frequency response, especially in the high-frequencies.

Recording level calibration
The recording level can be calibrated to the sensitivity of the tape to obtain the optimum performance from the Dolby NR system.

Quick reverse
The head reverses position quickly when the tape reaches the leader tape at the end when recording or playing back the front side of a cassette, allowing recording or playback to be continued with little interruption.

High-quality amplifier section
The recording section and the playback section of the right and left channels are physically separated with the signal paths of the right and left channels parallel, using the symmetric Dolby NR IC.

Useful functions
- The digital linear counter indicates the recording or playback time elapsed on the tape so that the tape can be precisely indexed.
- Bright FL-display peak program meters follow the transient peaks of the music and maintain the peak readings.
- The C-type Dolby NR system reduces tape noise twice as effectively as the conventional B-type system.
- The AMS (Automatic Music Sensor), blank skip and music scan functions allow you to locate the desired selection easily.
- The automatic tape select system adjusts the cassette deck to achieve the optimum recording and playback characteristics for each tape type.
- Using the optional remote control unit, various operations can be remotely controlled.
- A timer switch is provided to turn the deck on and off at preset times using the optional timer.

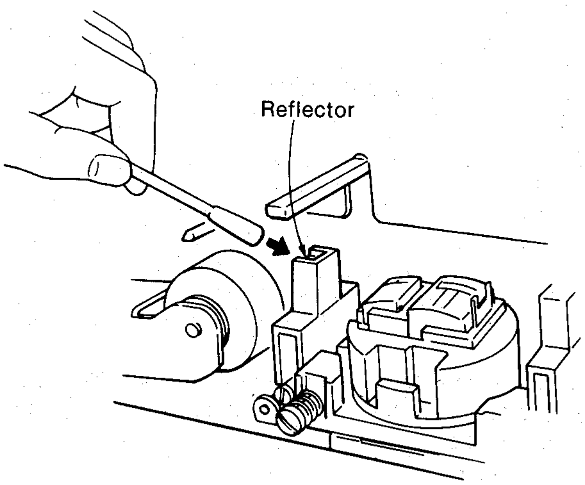
QUICK REVERSE

This cassette deck is provided with a quick reverse function which utilizes an infrared sensor. In a conventional reverse system, the head reverses position when the tape is wound completely to the end, so the program cannot be recorded while the leader tape is passing over the head. In the quick reverse system, an infrared sensor detects the difference between the magnetic particle coated tape and the leader tape, so the head can reverse position immediately before the leader tape.

The quick reverse function may not operate correctly when:
- recording or playback is started within 10 seconds before the leader tape.
- the leader tape is striped or of such a dark color as infrared rays cannot pass through, or the cassette has no leader tape.
- the base tape of the magnetic particle coated section is very thin, as in a C-120 cassette.
- the quick reverse sensor is exposed to strong light.
- the tape has been spliced with a piece of splicing tape.

Cleaning the tape guide
The quick reverse system of this deck detects the difference between the magnetic particle coated section and the leader tape section of a tape, using the infrared sensor and the reflector on the tape guide. To ensure that the quick-reverse function always works properly, clean the reflector as illustrated in Fig. I with a dry cleaning tip.

I



RECORDING LEVEL CALIBRATION

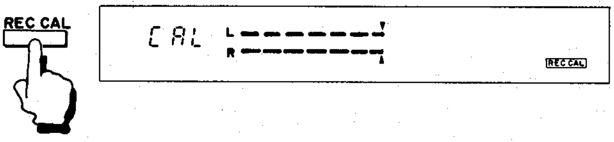
There are many different cassettes on the market and their characteristics vary. With this cassette deck you can adjust the recording characteristics much more precisely using the recording level calibrating function.

The Dolby NR function is most effective when the recording level and the playback level are the same. Calibrate the recording level as follows. Tape sensitivity will be compensated for automatically.

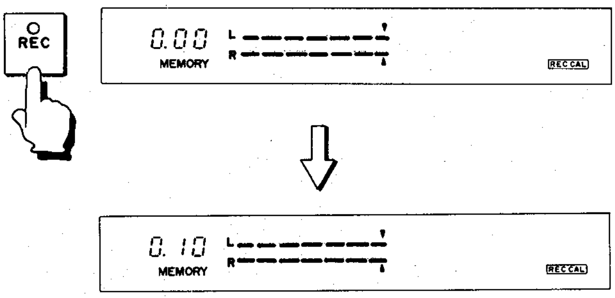
Note
The recording of the test tone, and rewinding and playback are performed automatically.

Operation

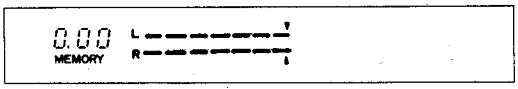
1 Depress the POWER switch to turn on the unit.
2 Press the ⏏ button and insert a cassette.
3 Press the REC CAL button.
The REC CAL indicator will light, and the display will change to the scale used for REC LEVEL calibration. CAL is displayed in the digital linear counter.



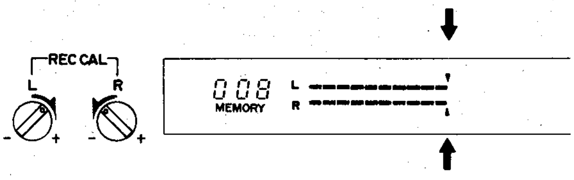
4 Press the ● button during the 2 seconds during which the REC CAL indicator is lit.
The counter is reset to 0.00, and the MEMORY indicator will light.
The test tone is recorded for about 10 seconds in the direction shown by the direction indicator.



When the test tone recording is finished, the tape will be rewound to 0.00, and the deck will automatically enter playback mode.

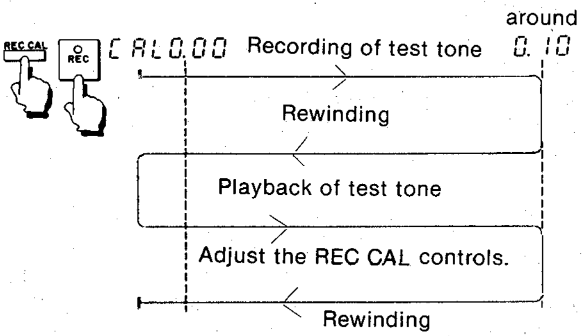


5 During the playback of the test tone, adjust the L and R channels with the REC CAL controls so the meters deflect to the ⧗ point.



When the recorded test tone playback is finished, the tape will be rewound to the vicinity of 0.00 and stop.

Tape movement (▷ FORWARD)

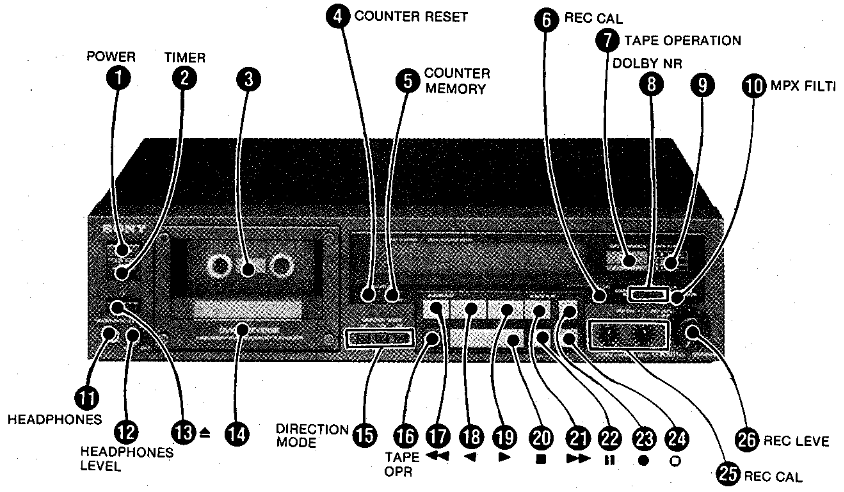


While the REVERSE ◁ indicator is lit, the tape moves in the opposite direction to the above.

Notes

- Adjust the REC CAL controls before the end of the playback of the test tone (Approx. 10 seconds). If adjustment is not finished during this period, press the REC CAL button and the ● button, and start again.
- When the test tone is being played back, the peak program meters may flicker slightly. This is because the meters can follow very slight changes in the sound level, and is no problem.
- The test tone is recorded at the proper level regardless of the position of the REC CAL controls.
- Do not calibrate the recording level near the beginning or the end of the tape.
- Set the REC CAL controls to the center detent position when recording without having made the REC LEVEL calibration.

FUNCTION OF CONTROLS



① POWER switch

② TIMER switch
You can set the unit to record or play back at a predetermined time by connecting any commercially available timer.

③ Cassette holder

④ COUNTER RESET button
Press to reset the tape counter to zero.

⑤ COUNTER MEMORY button
Used for the memory stop/play.

⑥ REC CAL button
To calibrate the recording level to the sensitivity of the tape, press this button before pressing the REC button. The recording level calibration will begin, and the test tone will be automatically recorded for about 10 seconds.

⑦ TAPE OPERATION indicator
These indicators show the tape operation selected with the TAPE OPR button.

⑧ DOLBY NR* switches
For recording or playback with Dolby B-type system, set the DOLBY NR switch to B. For recording or playback with Dolby C-type NR system, set it to C. For recording without Dolby NR system, set it to OFF.

*"Dolby" and the double-D symbol are trade marks of the Dolby Laboratories Licensing Corporation. Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.

⑨ TAPE TYPE indicator
When a cassette is inserted, the appropriate tape type indicator lights up.

⑩ MPX FILTER switch
Normally set this switch to OFF.
When recording FM stereo broadcasts with the Dolby NR system, set it to ON if the 19 kHz pilot signal and the 38 kHz subcarrier have not been adequately suppressed by the FM tuner or receiver.
If the tuner or the receiver suppresses such signals adequately (most high-quality tuners and receivers will), you do not have to set this switch to ON.
When your tuner is not equipped with the MPX filter or when the recorded FM broadcasting sound is audibly distorted, set this switch to ON.

⑪ HEADPHONES jack (stereo phone jack)

⑫ HEADPHONES LEVEL control
This control adjusts the headphone level.

⑬ ⏏ (eject) button
Press this button to open the cassette holder.

⑭ Direction indicator
Lights to show which side of the cassette is being played back or recorded on.

⑮ DIRECTION MODE buttons
Depress one of the buttons to select the mode of tape movement for recording and playback.

⇄ (one-direction) button: To record or play back one side of the cassette.

⊃ (one-cycle) button: To record or play back both sides of the cassette. If this button is pressed when the reverse side of the cassette is being recorded or played back, the tape will stop at the end of that side.

⊂⊃ (five-cycle) button: To play back both sides of the cassette five times or to record both sides of the cassette. If this button is pressed when the reverse side of the cassette is being played back, the tape will stop at the end of the 5th playback of the reverse side so that the front side will have been played back only four times.
When recording is made, the tape will stop at the end of the reverse side.

⑯ TAPE OPR button
To activate the AMS/blank skip function or the music scan function, press this button, so that the corresponding indicator lights up. Each time the button is pressed, the AMS/BLANK SKIP indicator, MUSIC SCAN indicator or no indicator lights up in sequence.
During the AMS/blank skip or the music scan operation, the ▶ button (when the front side of the cassette is played back) or the ◀ button (when the reverse side is being played back) blinks.

⑰ ◀◀ (fast-reverse) button
Press this button to advance the tape rapidly to the left. It is also used for the auto play, AMS and music scan function.

⑱ ◀ (reverse play) button
Press this button to play back the reverse side of the cassette. To record on the reverse side, press this button while holding the ● button down. The tape will be transported to the left.

⑲ ▶ forward button
Press this button to play the front side of the cassette. To record, press this button while holding the ● button down. The tape is transported to the right.

⑳ ■ (stop) button

㉑ ▶▶ (fast-forward) button
Press this button to advance the tape rapidly to the right. It is also used for the auto play, AMS and music scan function.

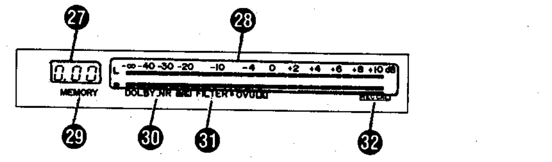
㉒ ❚❚ PAUSE button
Press this button to stop the tape running for a moment during recording or playback.

㉓ ● REC (record) button
Press this button together with the ◀ or ▶ button to start recording. When this button is pressed for recording level adjustment, the indicator of this button will light. The deck will detect the tab of the cassette and the indicator of the ◀ button or the ▶ button will light. If the tab has been removed, the indicator will not light.

㉔ ○ REC MUTE button
Press this button to eliminate unwanted material and to insert a blank space during recording.

㉕ REC CAL controls
Use these controls to finely adjust the recording level according to the sensitivity of each tape.

㉖ REC LEVEL (recording level) controls
These controls adjust the recording level.



㉗ Digital linear counter
Indicates the approximate tape running time.

㉘ Peak program meters
These meters show the peak input level of each channel during recording, and recorded levels in the playback mode.

㉙ MEMORY indicator
When the COUNTER MEMORY button is pressed, this indicator shows that the memory counter function is engaged.

㉚ Dolby NR indicators
The selected Dolby NR B or C type is indicated here.

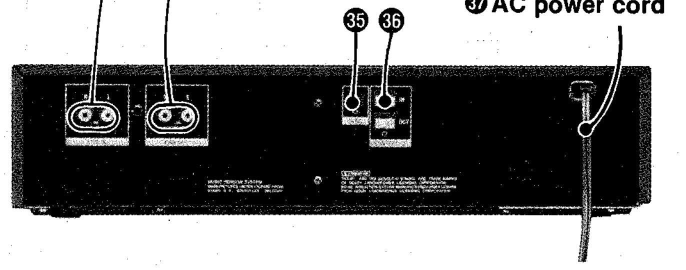
㉛ FILTER indicator
This indicator will light when the MPX FILTER switch is set to ON.

㉜ REC CAL indicator
This indicator will light during the REC LEVEL calibration operation. The display of the peak program meters changes to the scale used for REC LEVEL calibration.

㉝ LINE IN (line input) jacks (phono jack)

㉞ LINE OUT (line output) jacks (phono jack)

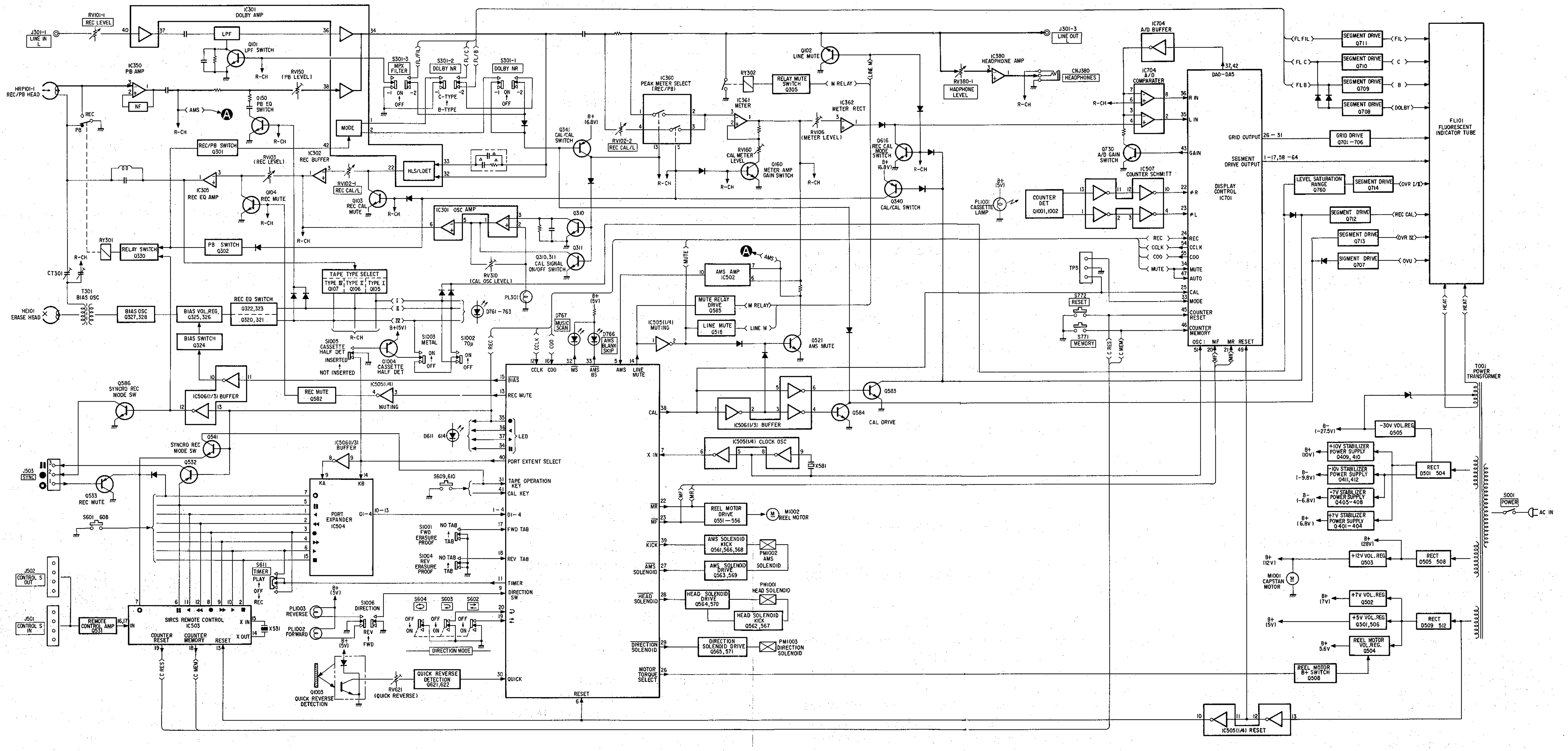
㊲ AC power cord



㉟ SYNC connector (3-pin)
For synchro recording, connect to the SYNC connector of Sony's turntable system. For further details, refer to the instruction manual of the Sony turntable system.

㊱ CONTROL S connector (4-pin)
OUT: Connect to the CONTROL S IN or ▣ REMOTE IN connector of other Sony audio equipments with the supplied flat 4-pin remote control cord for remote control of the total audio system.
IN: Connect to the CONTROL S OUT or ▣ REMOTE OUT connector of an optional Sony system control tuner or receiver for remote control of the total audio system.

SECTION 1
BLOCK DIAGRAM


J301-1
LINE IN L
RV101-1
REC LEVEL
IC301
DOLBY AMP
LPF
Q101
LPF SWITCH
R-CH
IC350
PB AMP
NF
HRP101-1
REC/PB HEAD
REC
PB
RV150
(PB LEVEL)
Q150
PB EQ SWITCH
AMS
A
S301-3
MPX FILTER
S301-2
DOLBY NR
S301-1
DOLBY NR
FL/FIL
FL/C
FL/B
ON
OFF
C-TYPE
B-TYPE
MODE
REC/PB SWITCH
Q301
IC302
REC BUFFER
RV103
(REC LEVEL)
RV102-1
REC CAL/L
HLS/LDET
IC305
REC EQ AMP
Q104
REC MUTE
Q103
REC CAL MUTE
IC301 OSC AMP
Q310
Q311
Q310,311
CAL SIGNAL ON/OFF SWITCH
RV310
(CAL OSC LEVEL)
RY301
RELAY SWITCH
Q330
PB SWITCH
Q302
CT301
T301
BIAS OSC
HE101
ERASE HEAD
BIAS OSC
Q327,328
BIAS VOL.REG.
Q325,326
REC EQ SWITCH
Q322,323
Q320,321
BIAS SWITCH
Q324
TAPE TYPE SELECT
TYPE IV
Q107
TYPE II
Q106
TYPE I
Q105
I
II
IV
PL301
D761 – 763
S1005
CASSETTE HALF DET
INSERTED
NOT INSERTED
B+(5V)
Q1004
CASSETTE HALF DET
S1003
METAL
S1002
70μ
Q586
SYNCRO REC MODE SW
IC506(1/3) BUFFER
REC MUTE
Q582
IC505(1/4)
MUTING
Q541
SYNCRO REC MODE SW
Q532
J503
SYNC
Q533
REC MUTE
S601 608
J502
CONTROL S OUT
J501
CONTROL S IN
REMOTE CONTROL AMP
Q531
SIRCS REMOTE CONTROL
IC503
X IN
X OUT
X531
COUNTER RESET
COUNTER MEMORY
RESET
C RES
C MEM
PORT EXPANDER
IC504
KA
KB
D1–4
S611
TIMER
PLAY
OFF
REC
S609,610
S1001
FWD ERASURE PROOF
S1004
REV ERASURE PROOF
NO TAB
TAB
PL1003
REVERSE
PL1002
FORWARD
S1006
DIRECTION
REV
FWD
S604
S603
S602
DIRECTION MODE
Q1003
QUICK REVERSE DETECTION
RV621
(QUICK REVERSE)
QUICK REVERSE DETECTION
Q621,622
BIAS
REC MUTE
LED
D611 614
PORT EXTENT SELECT
TAPE OPERATION KEY
CAL KEY
FWD TAB
REV TAB
TIMER
DIRECTION SW
QUICK
RESET
CCLK
COO
MS
AMS BS
AMS
LINE MUTE
D767
MUSIC SCAN
D766
AMS BLANK SKIP
B+ (5V)
CAL
X IN
MR
MF
KICK
AMS SOLENOID
HEAD SOLENOID
DIRECTION SOLENOID
MOTOR TORQUE SELECT
IC505(1/4) MUTING
MUTE
AMS AMP
IC502
MUTE RELAY DRIVE
Q585
M RELAY
LINE MUTE
Q518
LINE M
Q521
AMS MUTE
IC506(1/3) BUFFER
Q583
Q584
CAL DRIVE
IC505(1/4) CLOCK OSC
X581
REEL MOTOR DRIVE
Q551 — 556
M1002
REEL MOTOR
AMS SOLENOID KICK
Q561,566,568
PM1002
AMS SOLENOID
AMS SOLENOID DRIVE
Q563,569
PM1001
HEAD SOLENOID
HEAD SOLENOID DRIVE
Q564,570
HEAD SOLENOID KICK
Q562,567
DIRECTION SOLENOID DRIVE
Q565,571
PM1003
DIRECTION SOLENOID
Q341
CAL/CAL SWITCH
B+ (6.8V)
RV102-2
REC CAL/L
IC360
PEAK METER SELECT
(REC/PB)
RY302
RELAY MUTE SWITCH
Q305
IC361
METER
RV160
CAL METER LEVEL
Q160
METER AMP GAIN SWITCH
RV106
(METER LEVEL)
IC362
METER RECT
Q102
LINE MUTE
Q616
REC CAL MODE SWITCH
Q340
CAL/CAL SWITCH
J301-3
LINE OUT L
IC380
HEADPHONE AMP
RV380-1
HADPHONE LEVEL
CNJ380
HEADPHONES
PL1001
CASSETTE LAMP
COUNTER DET
Q1001,1002
TP3
S772
RESET
S771
MEMORY
IC704
A/D BUFFER
IC704
A/D COMPARATER
Q730
A/D GAIN SWITCH
IC507
COUNTER SCHMITT
DA0–DA5
37,42
R IN
L IN
GAIN
φR
φL
REC
CCLK
COO
MUTE
AUTO
CAL
MODE
COUNTER RESET
COUNTER MEMORY
OSC1
MF
MR
RESET
DISPLAY CONTROL
IC701
GRID OUTPUT
26 – 31
SEGMENT DRIVE OUTPUT
1–17,58 –64
FL FIL
FL C
FL B
SEGMENT DRIVE
Q711
SEGMENT DRIVE
Q710
SEGMENT DRIVE
Q709
SEGMENT DRIVE
Q708
FIL
C
B
DOLBY
GRID DRIVE
Q701 – 706
LEVEL SATURATION RANGE
Q760
SEGMENT DRIVE
Q714
OVR I/II
SEGMENT DRIVE
Q712
REC CAL
SEGMENT DRIVE
Q713
OVR IV
SIGMENT DRIVE
Q707
OVU
FL101
FLUORESCENT INDICATOR TUBE
HEAT
T001
POWER TRANSFORMER
B-
(-27.5V)
-30V VOL.REG
Q505
B+
(10V)
+10V STABILIZER POWER SUPPLY
Q409, 410
B-
(-9.8V)
-10V STABILIZER POWER SUPPLY
Q411,412
B-
(-6.8V)
-7V STABILIZER POWER SUPPLY
Q405-408
B+
(6.8V)
+7V STABILIZER POWER SUPPLY
Q401 - 404
RECT
D501 504
S001
POWER
AC IN
B+
(28V)
B+
(12V)
+12V VOL.REG
Q503
RECT
D505 508
M1001
CAPSTAN MOTOR
B+
(7V)
+7V VOL.REG.
Q502
B+
(5V)
+5V VOL.REG.
Q501,506
RECT
D509 512
B+
5.6V
REEL MOTOR VOL.REG.
Q504
REEL MOTOR B+ SWITCH
Q508
IC505(1/4) RESET

SECTION 2
DISASSEMBLY

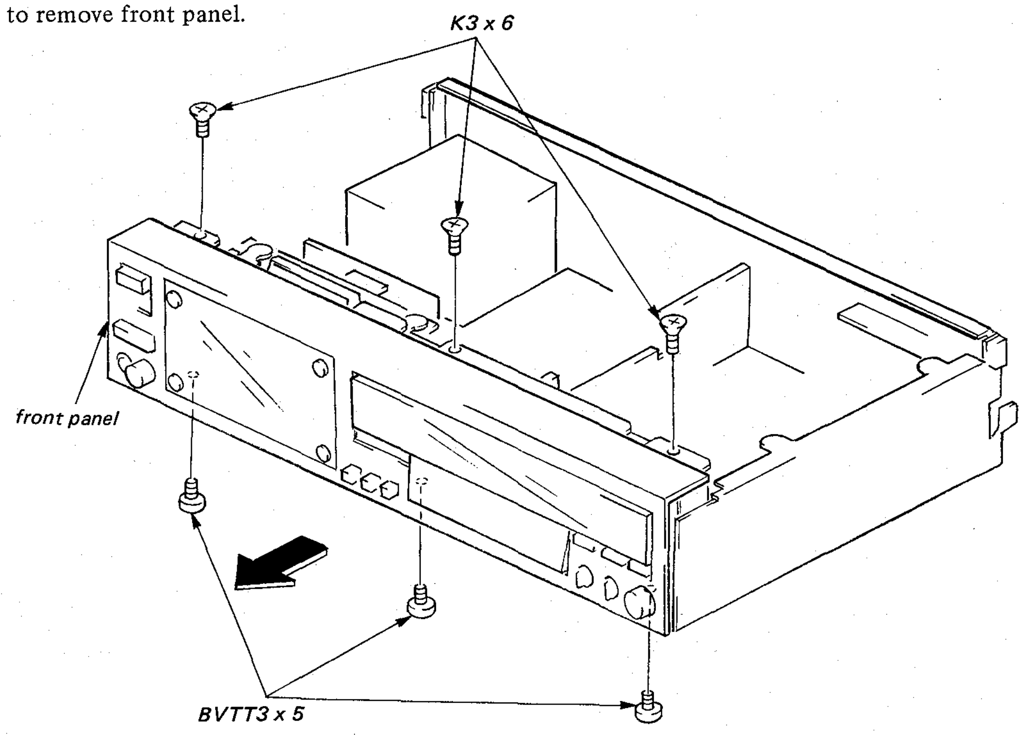
Note: Follow the disassembly procedure in the numerical order given.

CASE REMOVAL

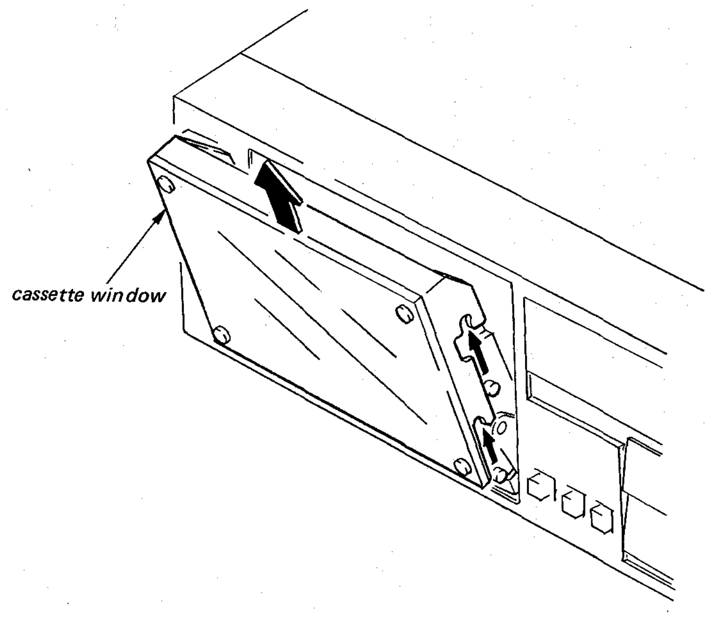
- Remove case by taking out four screws securing case.

FRONT PANEL

Take out 6 screws to remove front panel.

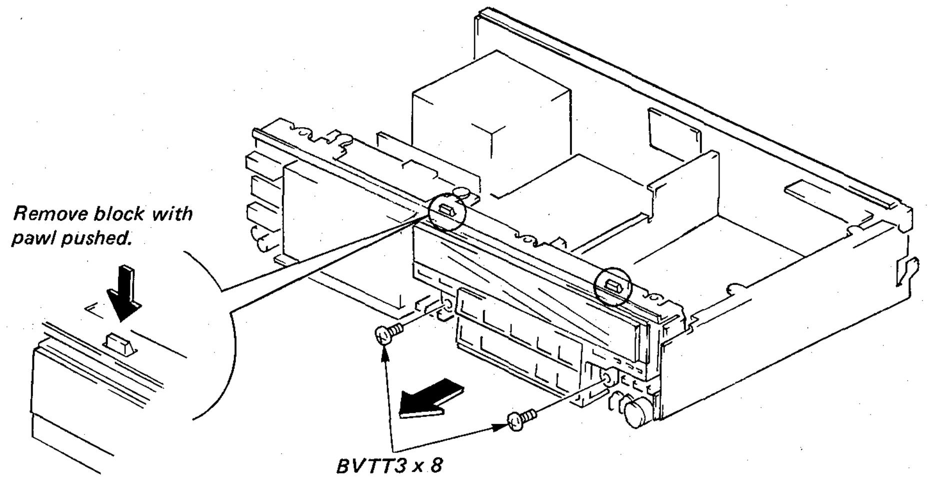

K3 x 6
front panel
BVTT3 x 5

CASSETTE WINDOW

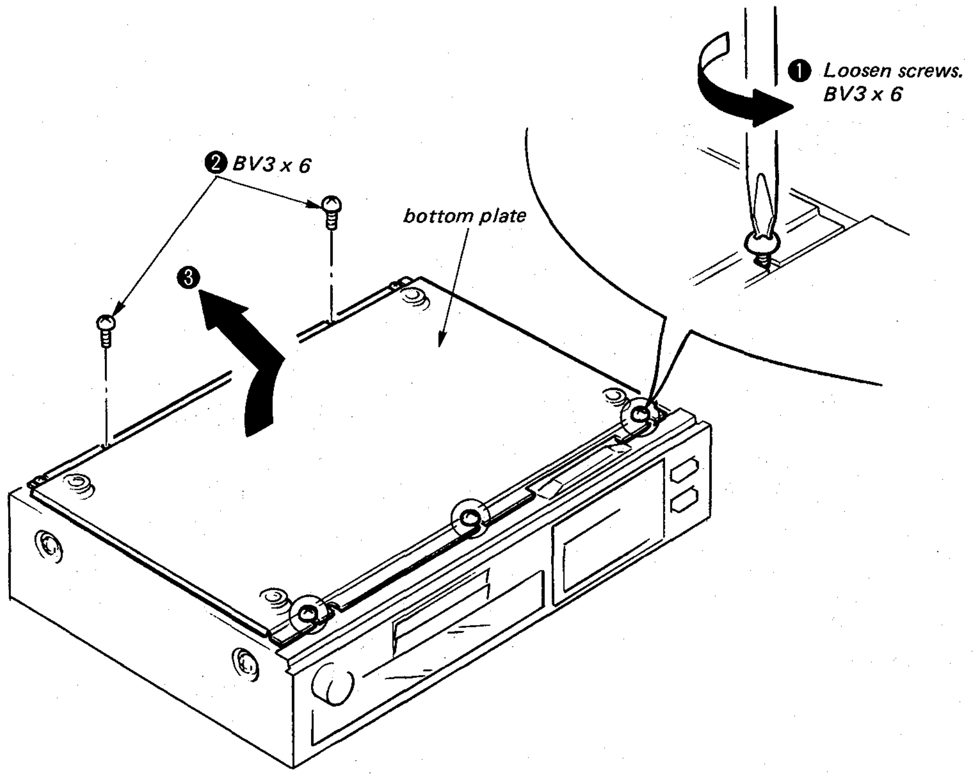

cassette window

DISPLAY, CONTROL BLOCK

The display/control block can be taken out by removing 2 screws and 2 pawls.

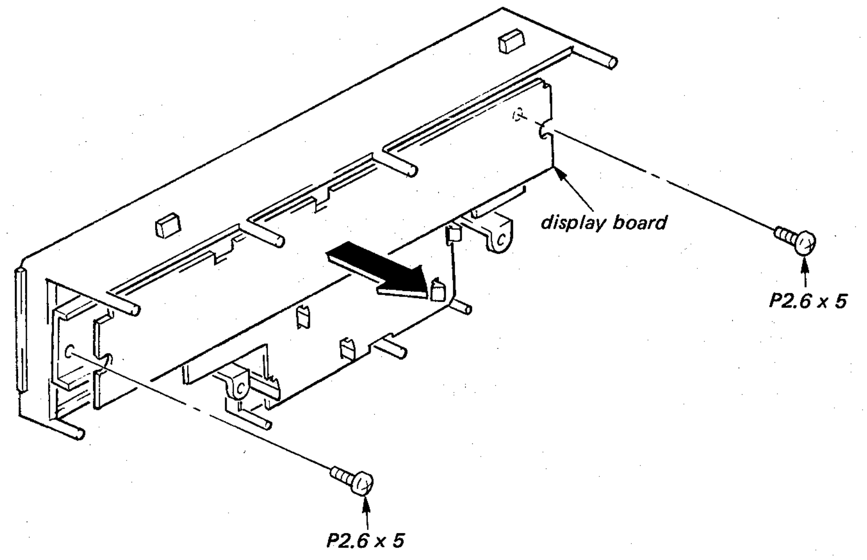

Remove block with pawl pushed.
BVTT3 x 8

BOTTOM PLATE

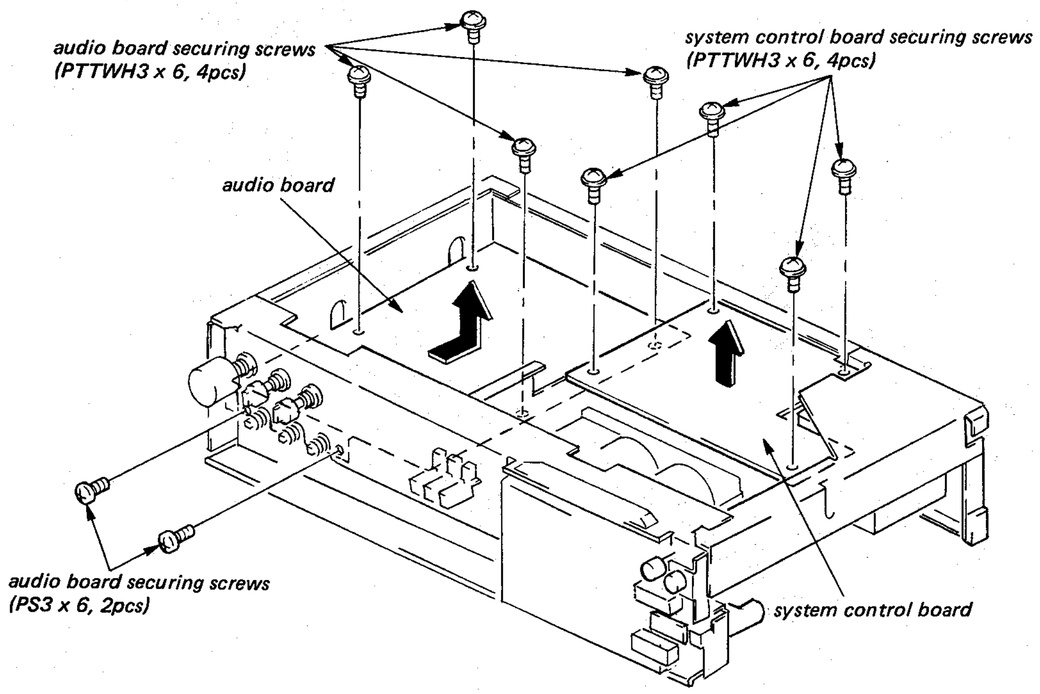

❶ Loosen screws. BV3 x 6
❷ BV3 x 6
❸
bottom plate

DISPLAY BOARD

Take out 2 screws to remove indicator board.

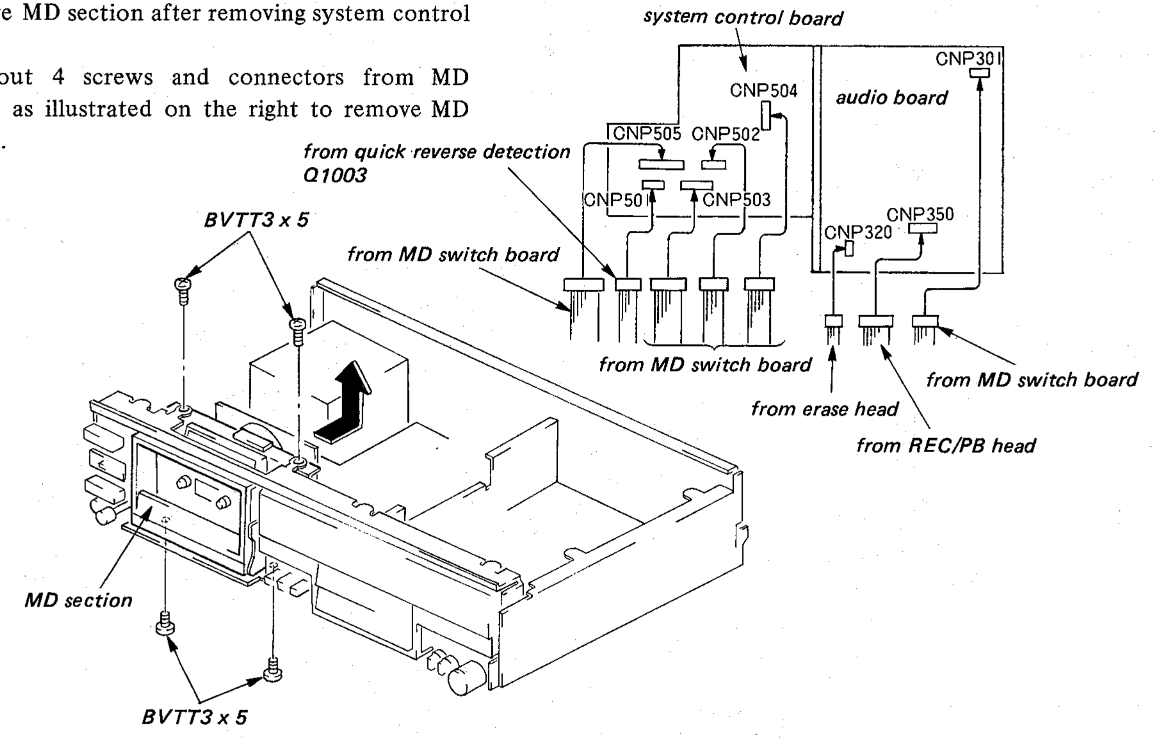

display board
P2.6 x 5
P2.6 x 5

AUDIO BOARD, SYSTEM CONTROL BOARD

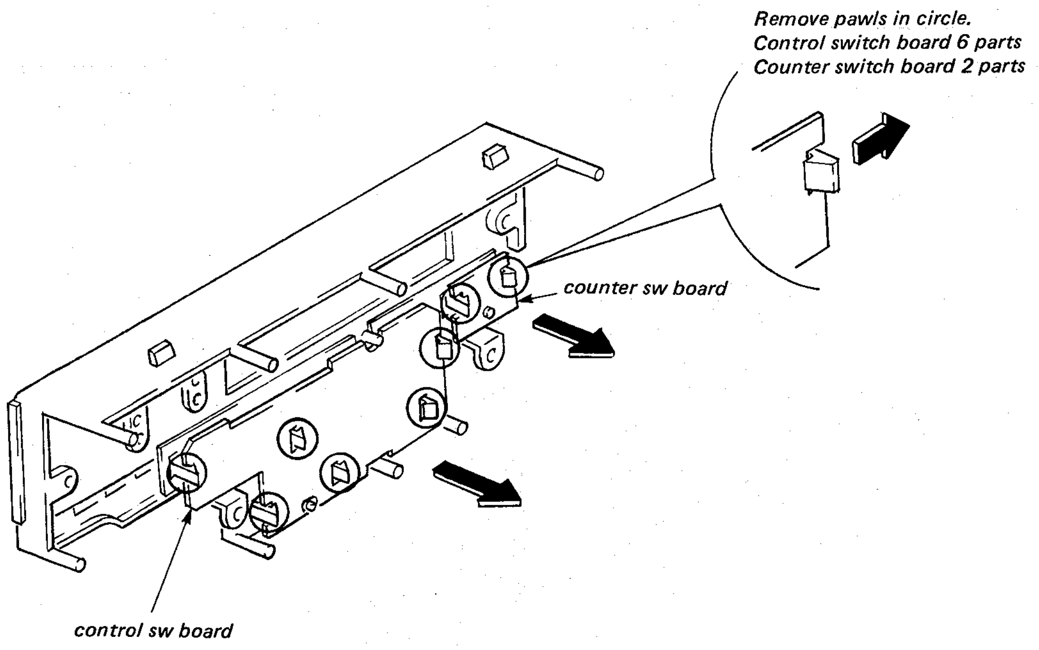

audio board securing screws
(PTTWH3 x 6, 4pcs)
system control board securing screws
(PTTWH3 x 6, 4pcs)
audio board
audio board securing screws
(PS3 x 6, 2pcs)
system control board

MD SECTION

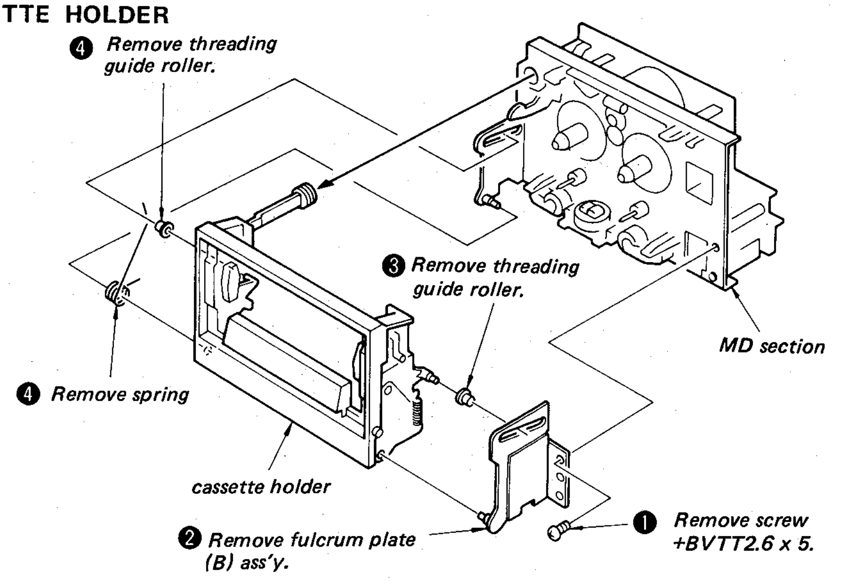
- Remove MD section after removing system control board.
- Take out 4 screws and connectors from MD section as illustrated on the right to remove MD section.


system control board
CNP301
CNP504
audio board
CNP505
CNP502
from quick reverse detection
Q1003
CNP501
CNP503
CNP350
CNP320
BVTT3 x 5
from MD switch board
from MD switch board
from MD switch board
from erase head
from REC/PB head
MD section
BVTT3 x 5

CONTROL SW BOARD, COUNTER SW BOARD


Remove pawls in circle.
Control switch board 6 parts
Counter switch board 2 parts
counter sw board
control sw board

CASSETTE HOLDER


❶ Remove screw +BVTT2.6 x 5.

❷ Remove fulcrum plate (B) ass'y.

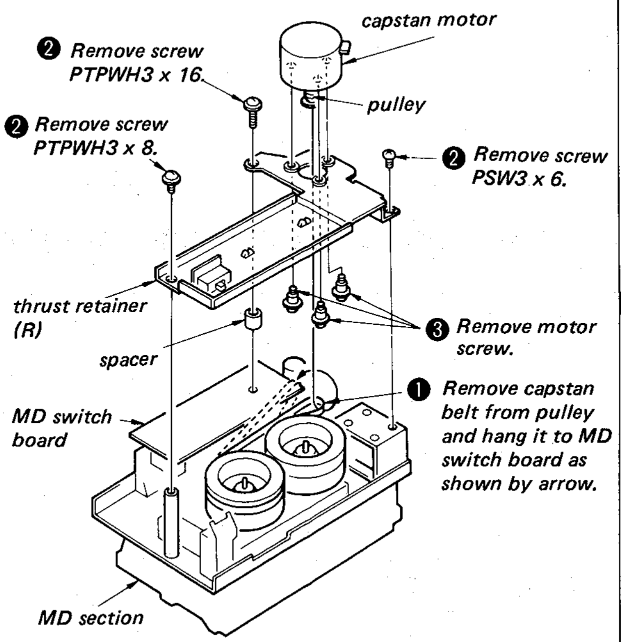
❸ Remove threading guide roller.

❹ Remove threading guide roller.

❹ Remove spring

cassette holder
MD section

CAPSTAN MOTOR


❶ Remove capstan belt from pulley and hang it to MD switch board as shown by arrow.

❷ Remove screw PTPWH3 x 16.

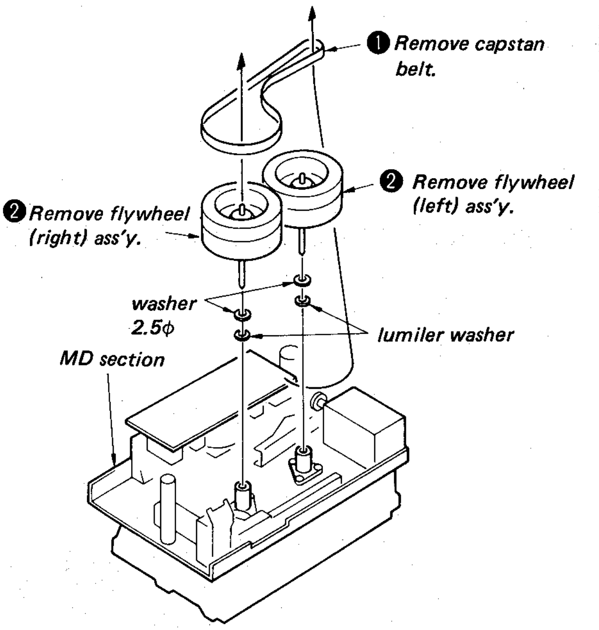
❷ Remove screw PTPWH3 x 8.

❷ Remove screw PSW3 x 6.

❸ Remove motor screw.

capstan motor
pulley
thrust retainer (R)
spacer
MD switch board
MD section

FLYWHEEL

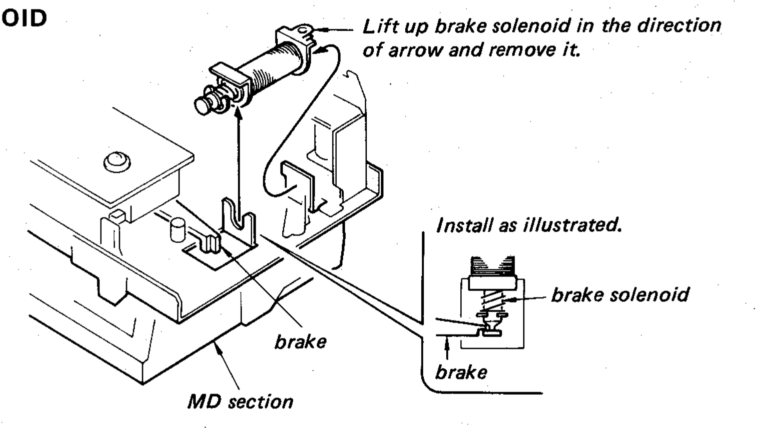

❶ Remove capstan belt.

❷ Remove flywheel (right) ass'y.

❷ Remove flywheel (left) ass'y.

washer 2.5ϕ
lumiler washer
MD section

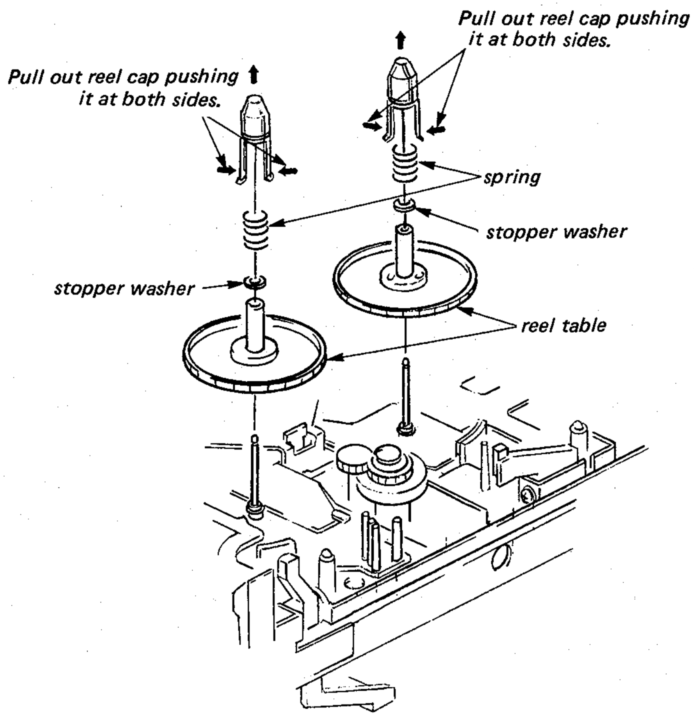
BRAKE SOLENOID


Lift up brake solenoid in the direction of arrow and remove it.

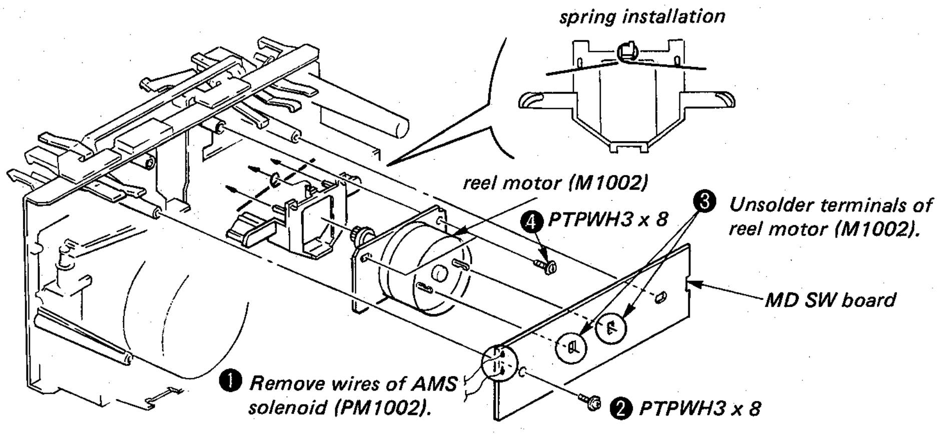
Install as illustrated.

brake solenoid
brake
brake
MD section

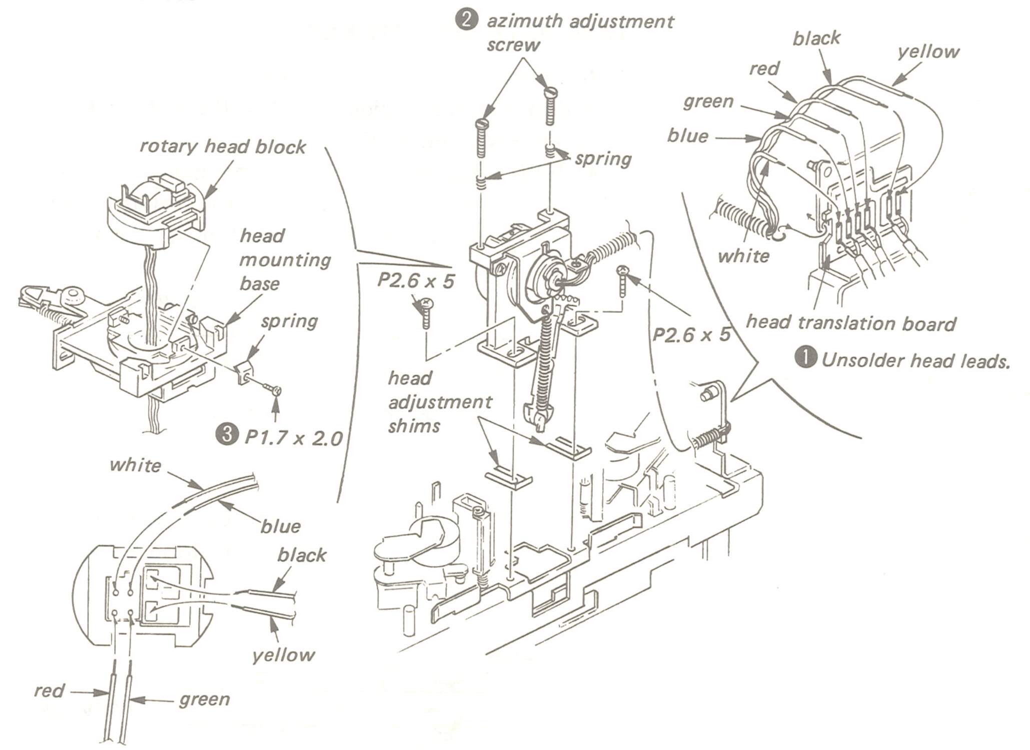
REEL TABLE


Pull out reel cap pushing it at both sides.
Pull out reel cap pushing it at both sides.
spring
stopper washer
stopper washer
reel table

REEL MOTOR

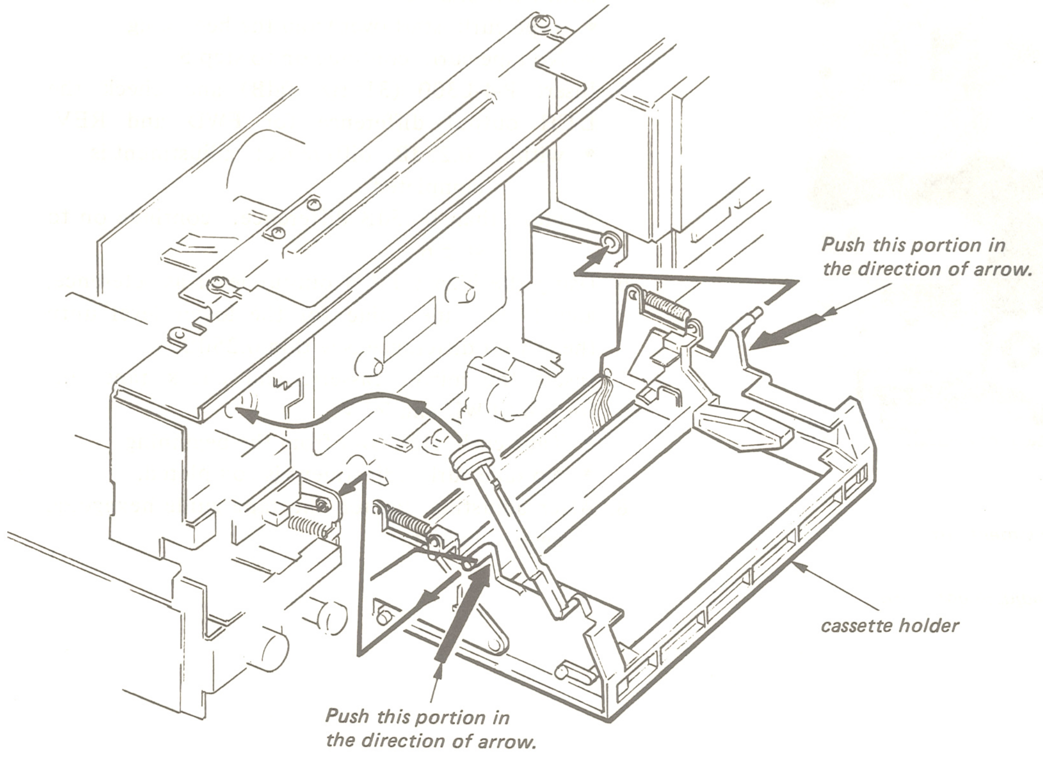

spring installation
reel motor (M1002)
❹ PTPWH3 x 8
❸ Unsolder terminals of reel motor (M1002).
MD SW board
❶ Remove wires of AMS solenoid (PM1002).
❷ PTPWH3 x 8

ROTARY HEAD BLOCK


② azimuth adjustment screw
spring
rotary head block
head mounting base
spring
③ P1.7 x 2.0
P2.6 x 5
P2.6 x 5
head adjustment shims
black
red
yellow
green
blue
white
head translation board
① Unsolder head leads.
white
blue
black
yellow
red
green

CASSETTE HOLDER (FOR ROTATING HEAD/TAPE GUIDE AND TAPE PASS ADJUSTMENT)

Note: Perform this cassette holder removal when adjustment.


Push this portion in the direction of arrow.
cassette holder
Push this portion in the direction of arrow.

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

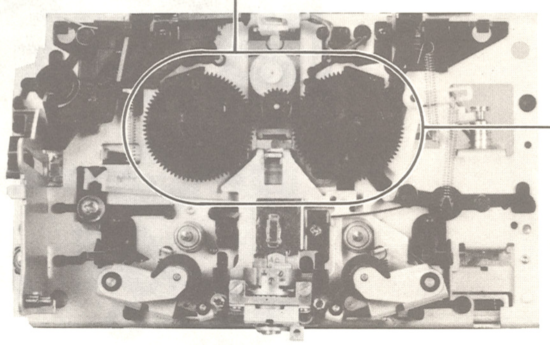
1. Clean the following parts with a denatured-alcohol-moistened swab:

   record/playback/erase head rubber belts
   capstan idlers
   pinch roller

2. Demagnetize the head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Torque	Torque meter	Meter reading
Forward	CQ-102C	30 – 60 g-cm (0.41 – 0.82 oz·inch)
Reverse	CQ-102B	
Fast Forward and Rewind	CQ-201B	70 – 120 g-cm (0.97 – 1.67 oz·inch)



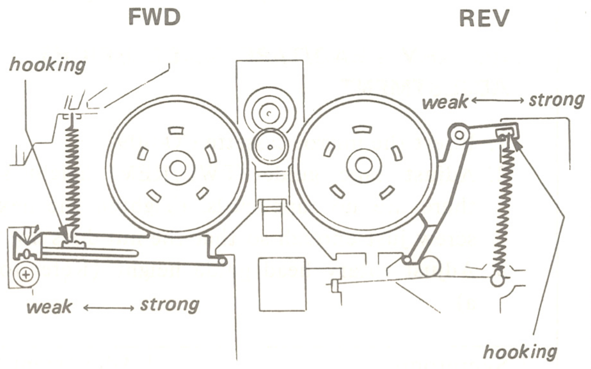
BACK TENSION ADJUSTMENT

– FWD and REV playback modes –

FWD
Torque meter CQ102C: 3.5 – 6.0 g-cm
(0.05 – 0.08 oz·inch)

REV
Torque meter CQ102RB. 3.5 – 6.0 g-cm
(0.05 – 0.08 oz·inch)

After adjustment, apply locking compound.

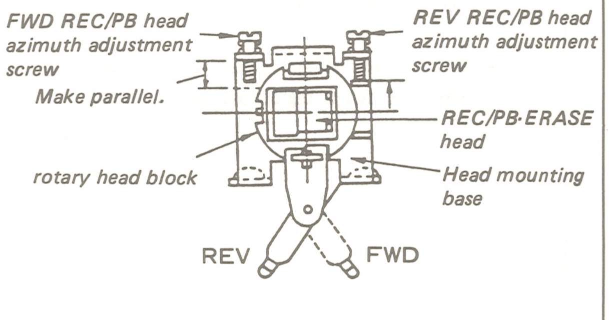

FWD
REV
hooking
weak ⟷ strong
weak ⟷ strong
hooking

TEMPORARY ADJUSTMENT WHEN REPLACING ROTARY HEAD BLOCK

Note: Be sure to perform this temporary adjustment first when replacing the head. If operation is performed without doing this adjustment first, the tape may be damaged.

Adjustment Method:

Adjust the FWD and REV recording and playback head azimuth adjustment screws, and adjust, checking by eye, so that the long side of the head frame and the head mounting base are parallel. Refer to the figure below.


FWD REC/PB head azimuth adjustment screw
Make parallel.
rotary head block
REV REC/PB head azimuth adjustment screw
REC/PB·ERASE head
Head mounting base
REV
FWD

NOTES ON HEAD REPLACEMENT

Rotary head guide height adjustment and tape path adjustment affect each other, so perform each one separately.

Note 1: When replacing the REC/PB and ERASE head, be sure to perform the temporary adjustment described on the previous page. If this is not done before operating, the tape may be damaged.

Note 2: Perform tape guide height adjustment only when after replacing the tape guides.

ROTARY HEAD/TAPE GUIDE HEIGHT ADJUSTMENT

1. Insert the mirror cassette CQ-009.
2. Adjust tape guide (FWD/REV) height so that there are no tape curls. (Tighten the hexagonal screw just enough so that the nut does not move.)
3. Adjust rotary head guide height. (Refer to figure a)

Symptoms	Adjustment Method
Curl at top of tape for both FWD and REV	Add shim. (0.2 + 0.1 = 0.3t)
Curl at bottom of tape for both FWD and REV	Replace shim. (0.2t →0.1t)
Curl at top of tape for FWD, curl at bottom of tape for REV.	Loosen rotation center screw
Curl at bottom of tape for FWD, curl at top of tape for REV	Tighten rotation center screw

Shim List

Part No.	t
3-307-477-01	0.1
3-307-477-11	0.2
3-307-477-21	0.3
3-307-477-31	0.4
3-307-477-41	0.05

4. Lock the rotary head base mounting screw and then perform tape path adjustment.

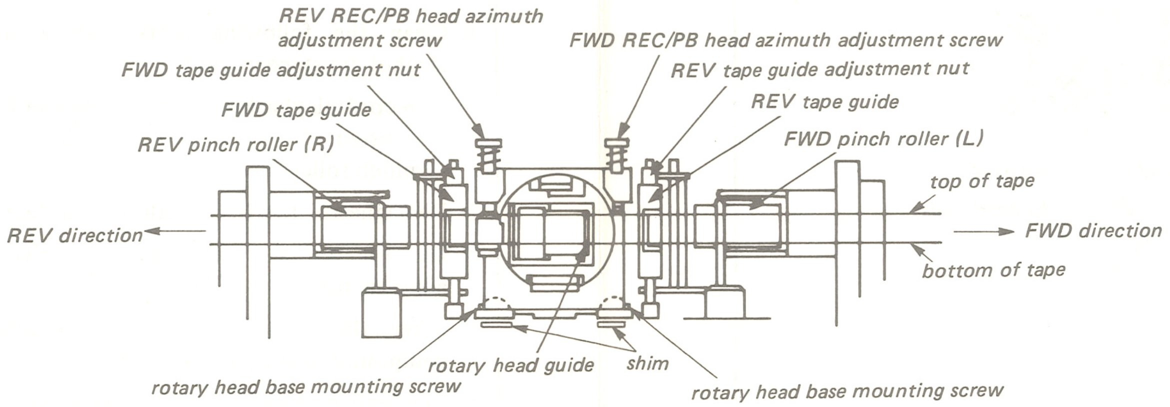
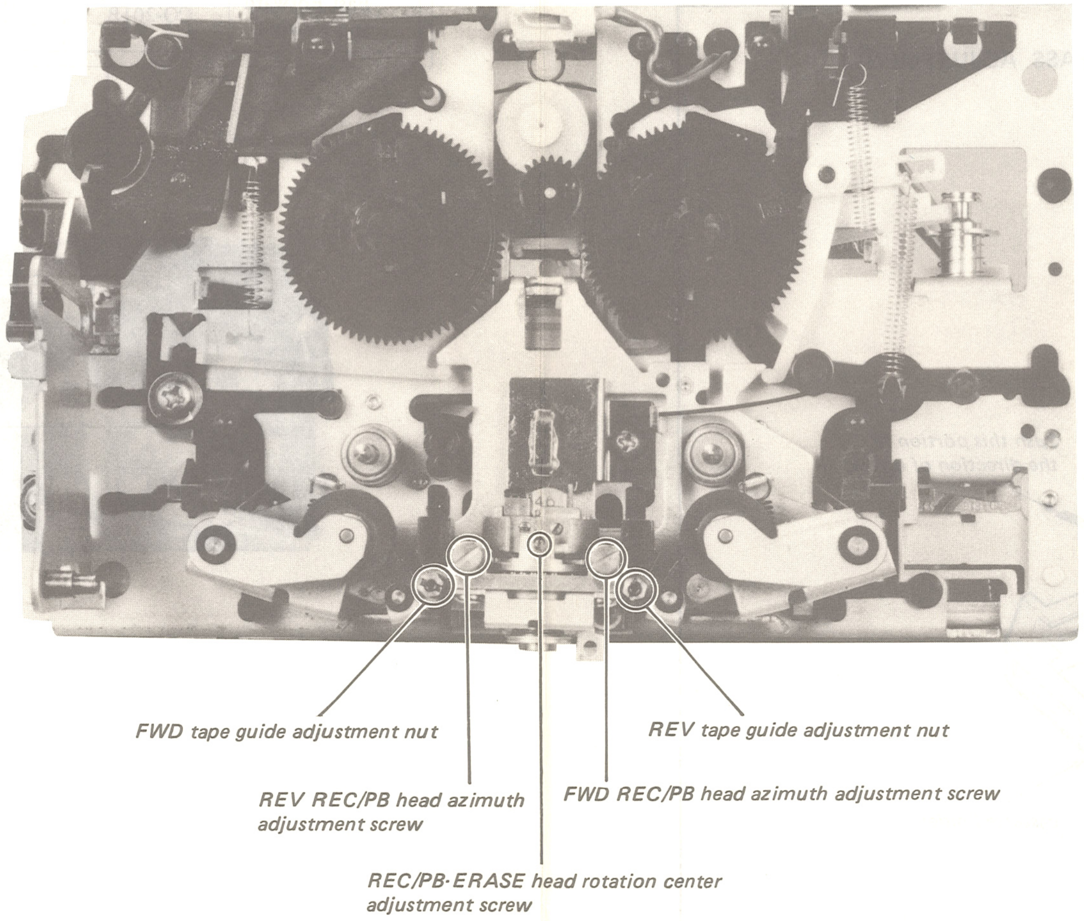
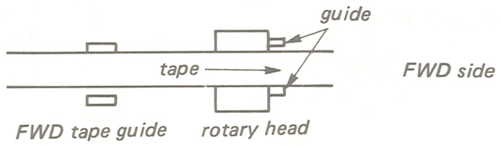

REV REC/PB head azimuth adjustment screw
FWD REC/PB head azimuth adjustment screw
FWD tape guide adjustment nut
REV tape guide adjustment nut
FWD tape guide
REV tape guide
REV pinch roller (R)
FWD pinch roller (L)
top of tape
REV direction
FWD direction
bottom of tape
rotary head guide
shim
rotary head base mounting screw
rotary head base mounting screw

Fig. a View of the Mirror Cassette

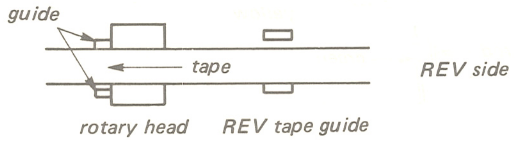

FWD tape guide adjustment nut
REV tape guide adjustment nut
REV REC/PB head azimuth adjustment screw
FWD REC/PB head azimuth adjustment screw
REC/PB·ERASE head rotation center adjustment screw

TAPE PATH ADJUSTMENT

1. Insert the mirror cassette CQ-009.
2. Adjust the tape guides so that there is no tape curl in FWD and REV.
   - FWD: Adjust the FWD tape guide so that there is no curl at the rotary head guide side at the bottom of the tape.


guide
tape
FWD side
FWD tape guide
rotary head

   - REV: Adjust the REV tape guide so that there is no curl at the rotary head guide side at the top of the tape.


guide
tape
REV side
rotary head
REV tape guide

3. Perform REC/PB head azimuth adjustment. (Refer to page 20 for adjustment method.)
   - Maximum output for both FWD and REV
   - Resurge waveform: within 30°
4. Insert the mirror cassette and check tape curl for both FWD and REV.
   - Tape curl: start over from the beginning
   - No tape curl: continue on to step 5
5. Insert P-4-L300 (315Hz, 0dB) and check the L-CH output difference for FWD and REV.
   - within 0.25dB difference: adjustment is completed
   - more than 0.25dB difference: continue on to step 6
6. Using the higher L-CH output level as reference, adjust the tape guide for the lower level until the output difference is within 0.25dB.
7. Insert the mirror cassette and check tape curl for both FWD and REV.
   - Tape curl: start over from the beginning
   - No tape curl: adjustment is completed.
8. After adjusting, tighten the tape guide hexagonal screw and lock it.

3-2. ELECTRICAL ADJUSTMENTS

Note: The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

- Set the TAPE SELECT switches according to the tape as follows.

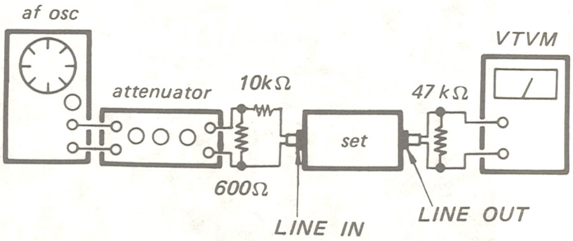
Tape	TAPE SELECT switch
CS-15	AUTO
CS-26	AUTO
CS-42	AUTO

- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR: OFF
TIMER : OFF
REC CAL : center (center click)

- Standard Record:
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

– Record Mode –



Standard Input Level

	LINE IN
source impedance	10kΩ
input level	0.25V (–10dB)

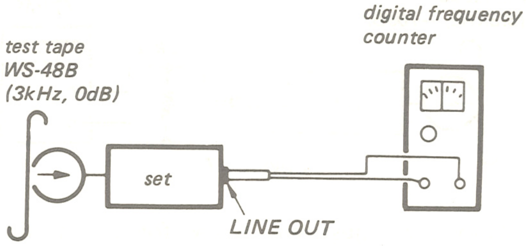
Standard Output Level

	LINE OUT	PHONES
load impedance	47kΩ	8Ω
output level	0.44V (–5dB)	31mV (–28dB)

Tape Speed Adjustment

Procedure:

1. Mode: forward playback

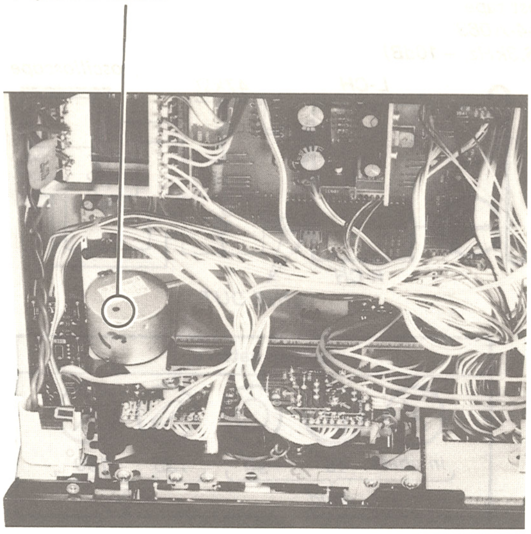


Play back the beginning of tape in forward mode, and adjust the adjustable resistor that built in motor for 2,970 to 3,000Hz reading on the frequency counter.

2. Play back at the tape position in the step 1 in reverse mode. Confirm that the frequency counter reading 2,970 to 3,000Hz at that time.
3. Play back the beginning of opposite side of the tape in forward and reverse mode. Confirm that the frequency counter reading is 2,970 to 3,000Hz at that time.

Adjustment Location: Motor (M1001)

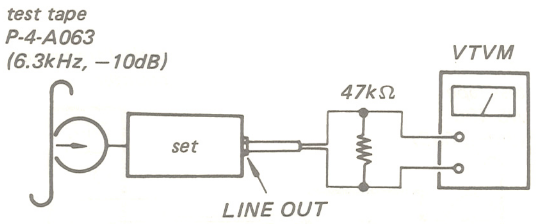
Built-in adjustable resistor
(Adjust the speed by using screwdriver, When turning the screw clockwise, speed is faster.)



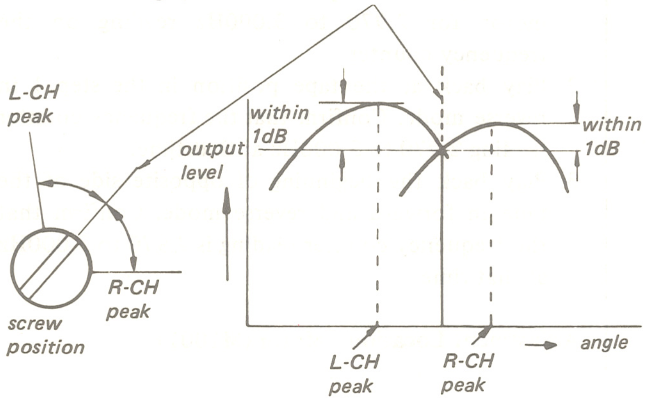
Forward Record/playback Reverse Record/playback Head Azimuth Adjustment

Procedure:

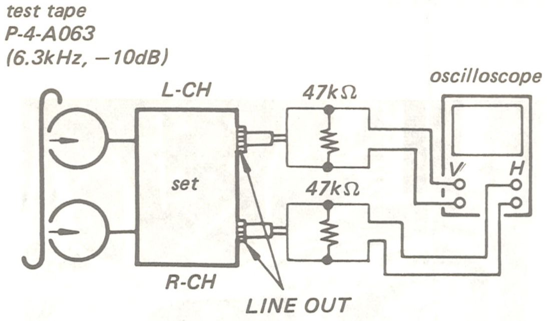
1. Forward playback
2. Mode: playback

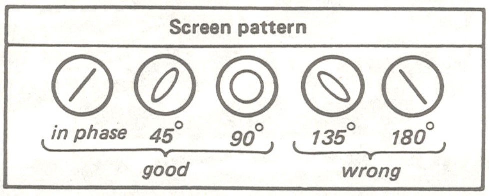

test tape
P-4-A063
(6.3kHz, –10dB)
set
47kΩ
VTVM
LINE OUT

3. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.


L-CH
peak
R-CH
peak
screw
position
output
level
within
1dB
within
1dB
L-CH
peak
R-CH
peak
angle

4. Mode: playback


test tape
P-4-A063
(6.3kHz, –10dB)
L-CH
R-CH
set
47kΩ
47kΩ
oscilloscope
V
H
LINE OUT

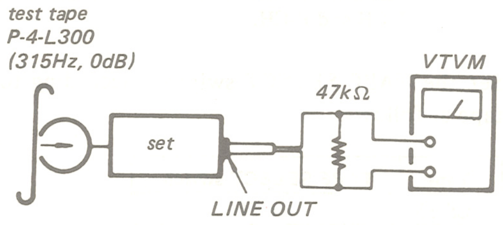

Screen pattern
in phase
45°
90°
135°
180°
good
wrong

5. After the adjustment, lock the screws with locking compound.
6. Reverse playback.
7. Perform step 2 – 5 similarly.

Playback Level Adjustment

Procedure:

Mode: forward playback


test tape
P-4-L300
(315Hz, 0dB)
set
47kΩ
VTVM
LINE OUT

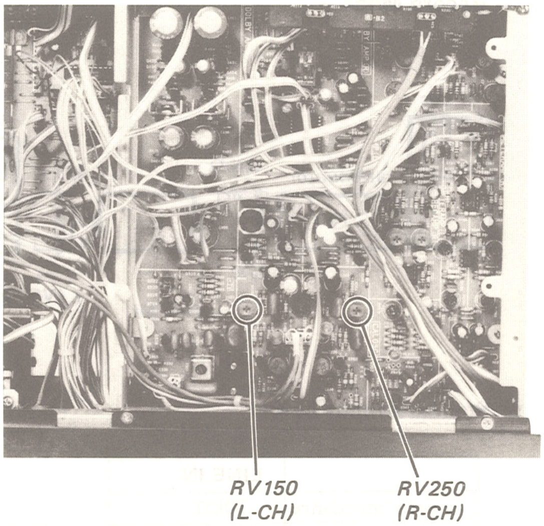
Adjust the RV150 (L-CH) and RV250 (R-CH) so that the specification is met.

Specification:

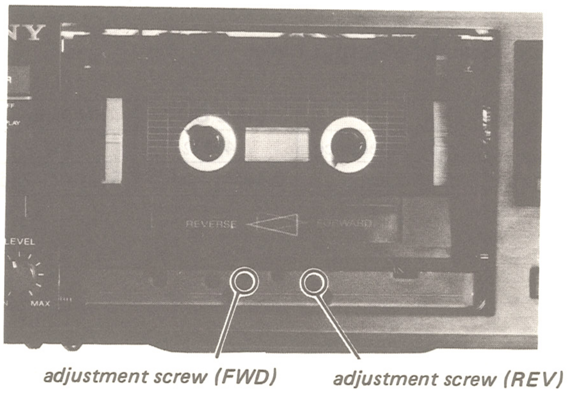
LINE OUT level: 0.41 to 0.46V
(–5.5 to –4.5dB)

Level difference between channels:
less than 0.3dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.


RV150
(L-CH)
RV250
(R-CH)

Adjustment Location:


adjustment screw (FWD)
adjustment screw (REV)

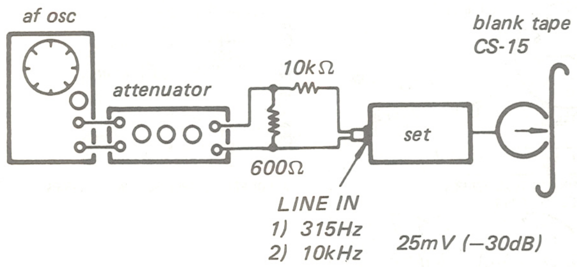
Record Bias Adjustment

Setting:

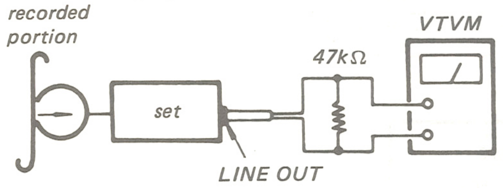
REC level control: standard record (See page 19.)

Procedure:

1. Mode: record

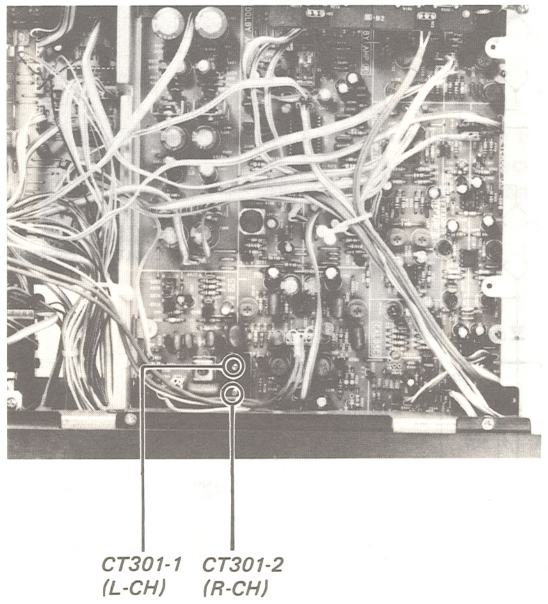

af osc
attenuator
10kΩ
600Ω
set
blank tape
CS-15
LINE IN
1) 315Hz
2) 10kHz
25mV (−30dB)

2. Mode: playback


recorded
portion
set
47kΩ
VTVM
LINE OUT

Confirm that the 10kHz playback output is 0dB relative to the 315Hz output. If necessary, adjust CT301 and repeat the steps given above.

Adjustment Location: audio board


CT301-1
(L-CH)
CT301-2
(R-CH)

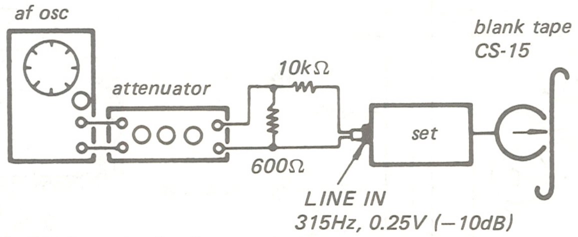
Record Level Adjustment

Setting:

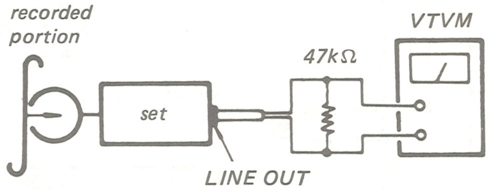
REC level control: standard record (See page 19.)

Procedure:

1. Mode: record


af osc
attenuator
10kΩ
600Ω
set
blank tape
CS-15
LINE IN
315Hz, 0.25V (−10dB)

2. Mode: playback

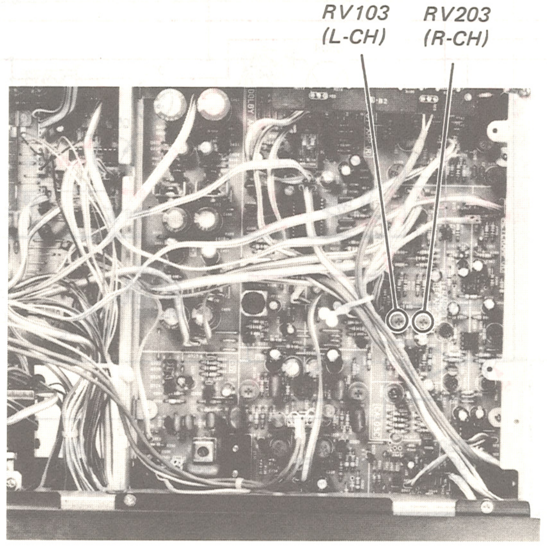

recorded
portion
set
47kΩ
VTVM
LINE OUT

3. Play back the signal recorded in step 1. Confirm that the signal level is within the specification below. If necessary, adjust RV103 (L-CH) RV203 (R-CH) and repeat the step 1-3.

Specification:

blank tape	LINE OUT level
CS-15	0.41 to 0.46V (−5.2 to −4.8dB)
CS-26, 42	0.35 to 0.44V (−7 to −5dB)

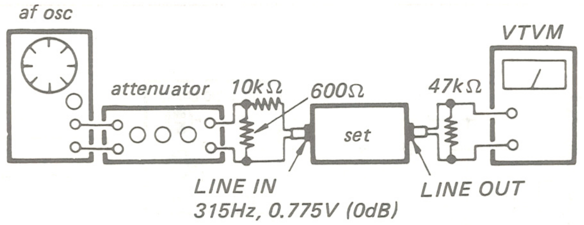
Adjustment Location: audio board


RV103
(L-CH)
RV203
(R-CH)

Level Meter Calibration

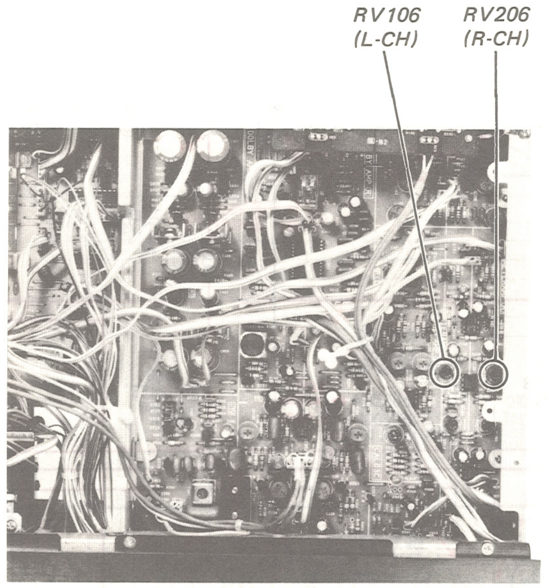
Procedure:

1. Mode: record


af osc
attenuator
10kΩ
600Ω
set
47kΩ
VTVM
LINE IN
315Hz, 0.775V (0dB)
LINE OUT

2. Adjust REC LEVEL control (RV101) so that the VTVM reads −5.2dB.
3. Adjust RV106 (L-CH) and RV206 (R-CH) so that OVU (−4dB) segment on the meter lights up.
4. When the LINE OUT level is +9dB, confirm that all segments on the meter light up.

Adjustment Location: audio board

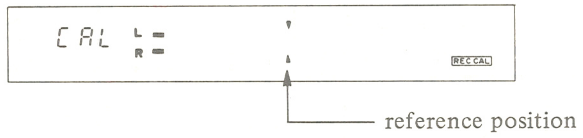

RV106
(L-CH)
RV206
(R-CH)

CAL Oscillation Level/CAL Meter Level Adjustment

Conditions.

- REC CAL knob: center (center click)
- Ground system control board TP-3 (CAL mode) as shown in the figure. (Display tube displays CAL, and CAL oscillation state begins.)

CAL mode display

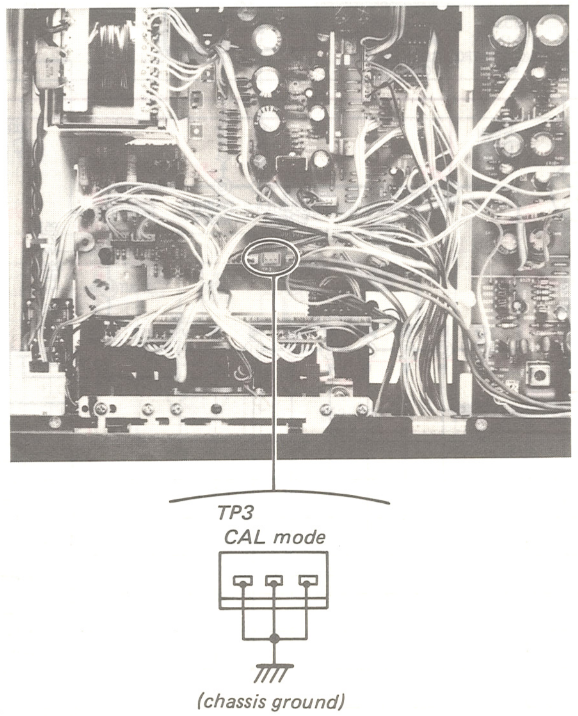

CAL
L
R
REC CAL
reference position

Adjustment Method:

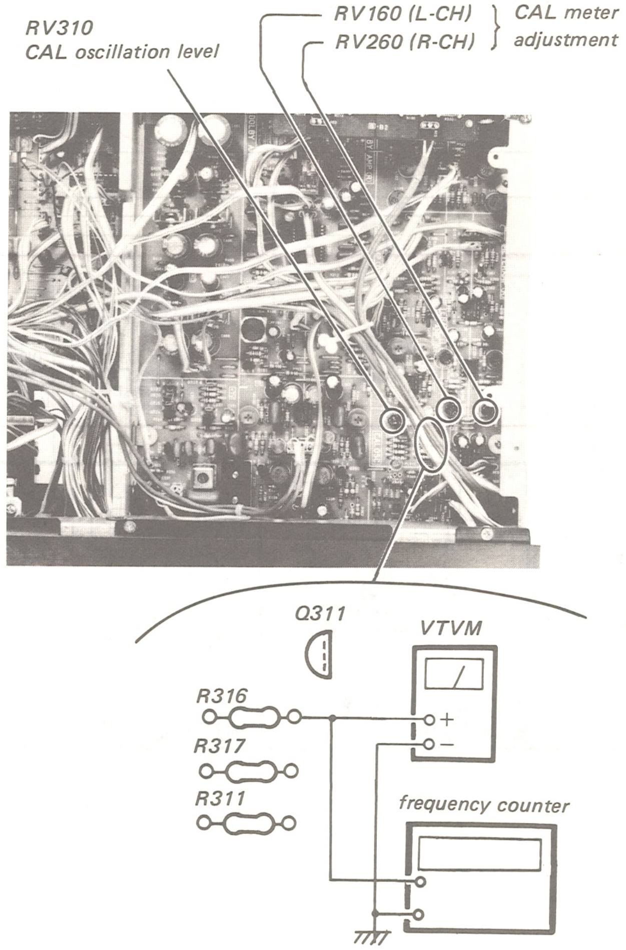
– FWD –

1. Connect a VTVM and frequency counter to audio board R316 as shown in the figure.
2. Adjust RV310 so that CAL oscillation level is 0.45V (–4.8dB). At the same time, check that the oscillation frequency is 400Hz ±50Hz on the frequency counter.
3. Insert CS-15, perform recording operation for about 10 seconds, then rewind the tape and play it back. Adjust RV160 (L-CH) and RV260 (R-CH) so that the segment one above the reference position lights up at this time.
4. Stop, check the CAL oscillation level again, and lower the oscillation level to 0.2dB below that value with RV310.
   Final oscillation level value: 0.44V (–5dB)
5. Record and play back again using CS-15, and confirm that the meter indication is lit up to the reference position.
6. Check the meter indication when the REC CAL knob on the panel is set at MIN and MAX.
   MIN: 6–8 segments from the reference position go out.
   MAX: 6–8 segments from the reference position light up.
7. Check step 5 for REV operation.
8. After adjustment, remove the connection to system control board TP-3 (CAL mode).

Connection Location: System control board (TP3)


TP3
CAL mode
(chassis ground)

Connection & Adjustment Locations: Audio board


RV310
CAL oscillation level
RV160 (L-CH)
RV260 (R-CH)
CAL meter adjustment
Q311
VTVM
R316
R317
R311
frequency counter

Quick Reverse Sensitivity Adjustment

Conditions:

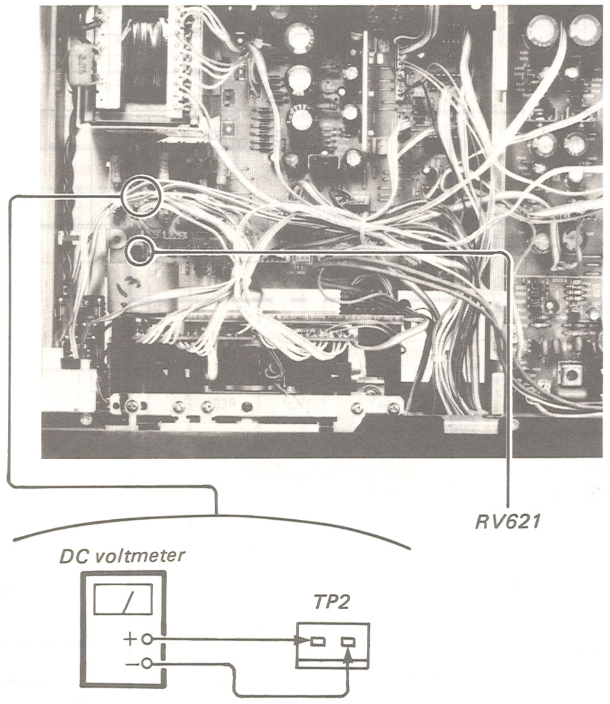
Direction mode switch:

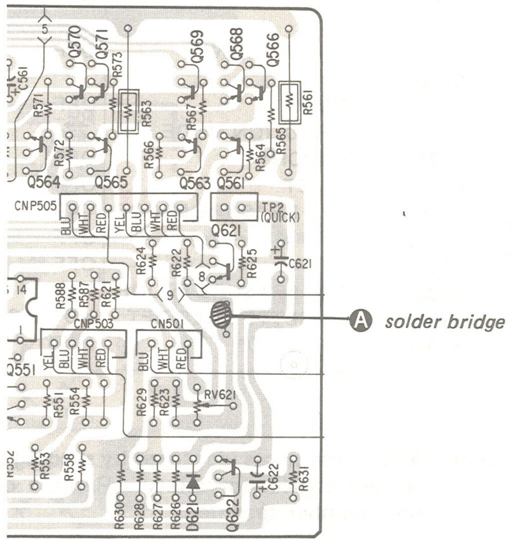
Adjustment Method:

1. Connect a DC voltmeter to system control board TP2.
2. Insert an empty cassette and put into FWD state.
3. Adjust RV621 for 3V reading on the DC voltmeter.
   - If the voltage is outside of this range, solder bridge section Ⓐ and readjust.

Specification: 3V ±0.5V

4. Repeat FWD, STOP two or three times and check the voltage again.


RV621
DC voltmeter
TP2


Q570
Q571
Q569
Q568
Q566
Q564
Q565
Q563
Q561
CNP505
TP2 (QUICK)
Q621
CN501
RV621
Q622
Ⓐ solder bridge

4-1. SCHEMATIC DIAGRAM
– SYSTEM CONTROL SECTION –

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▬ : B+ bus.
- ╍ : B– bus.
- ▭ : adjustment for repair.
- Readings are taken under STOP conditions with a VOM (50kΩ/V).

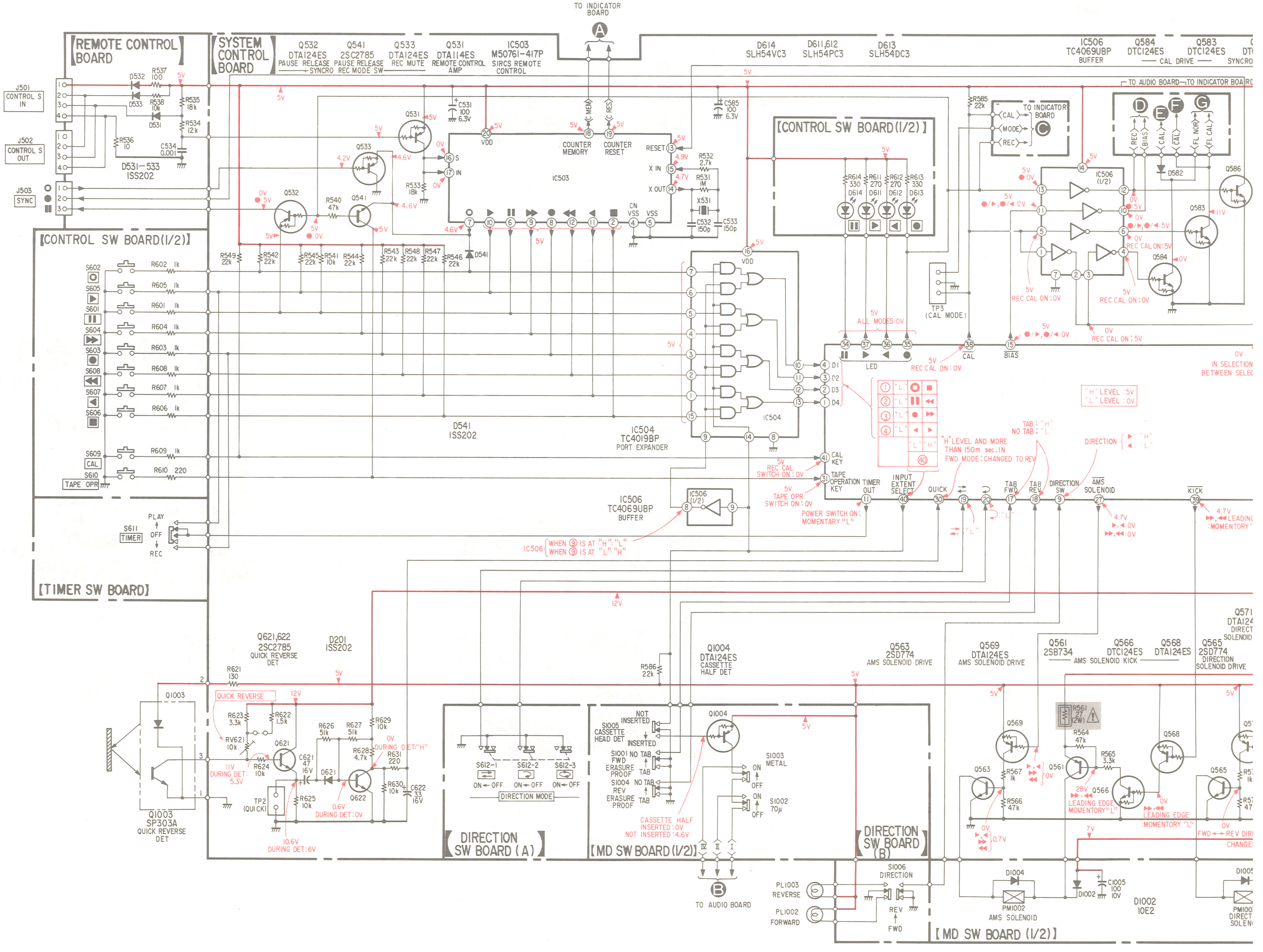
▶ : FWD ◀◀ : REW ● : REC ○ : REC MUTE
▶▶ : FF ■ : STOP ◀ : REV ❚❚ : PAUSE

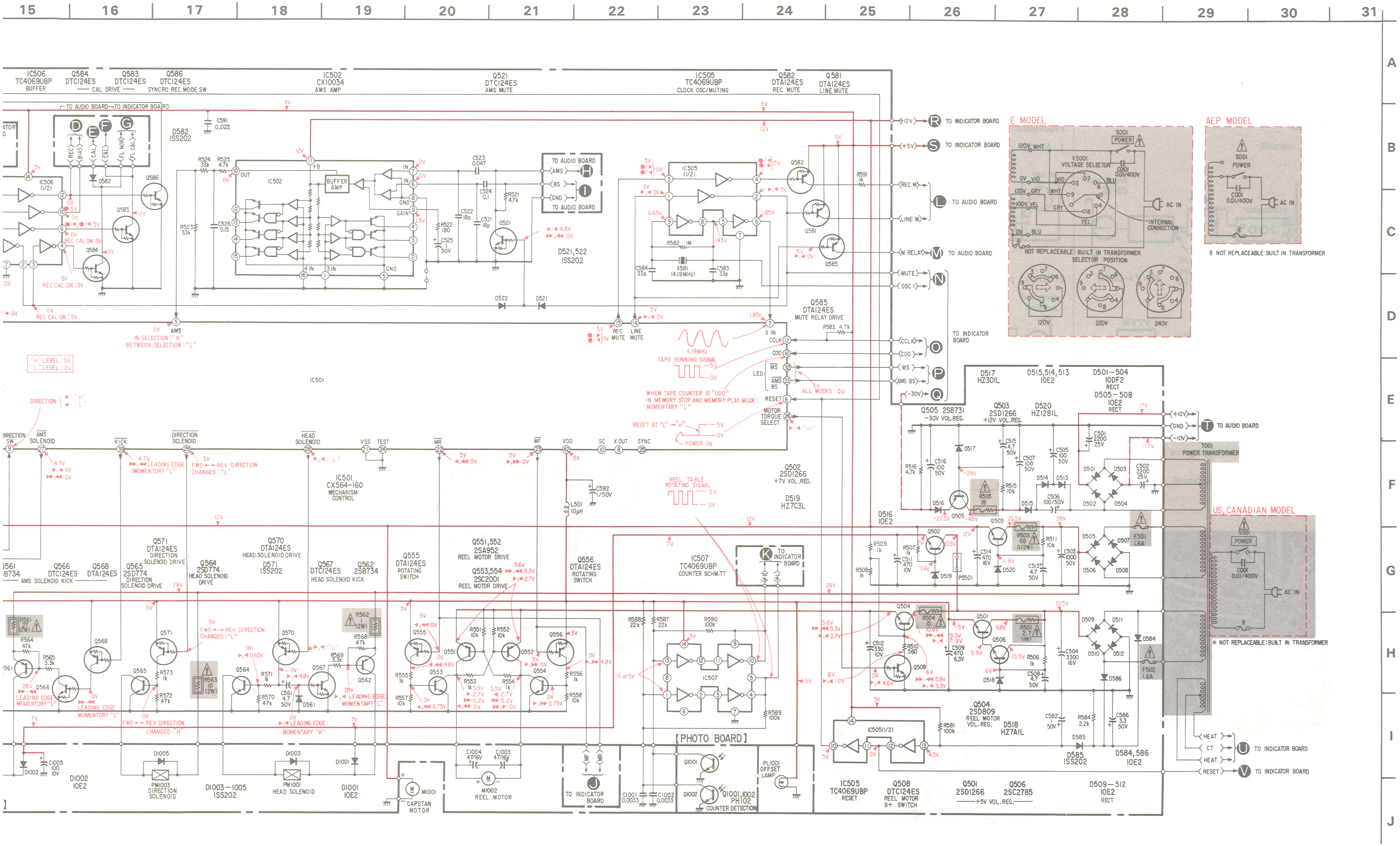
- Switch

Ref. No.	Switch	Position
S001	POWER	OFF
S601 | S610	CONTROL SW	OFF
S611	TIMER	OFF
S612	DIRECTION MODE	⇄
S771	MEMORY	OFF
S772	RESET	OFF
S1001	FWD ERASURE PROOF	TAB
S1002	70μ	OFF
S1003	METAL	OFF
S1004	REV ERASURE PROOF	TAB
S1005	CASSETTE HALF DET	NOT INSERTED
S1006	DIRECTION	FWD

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

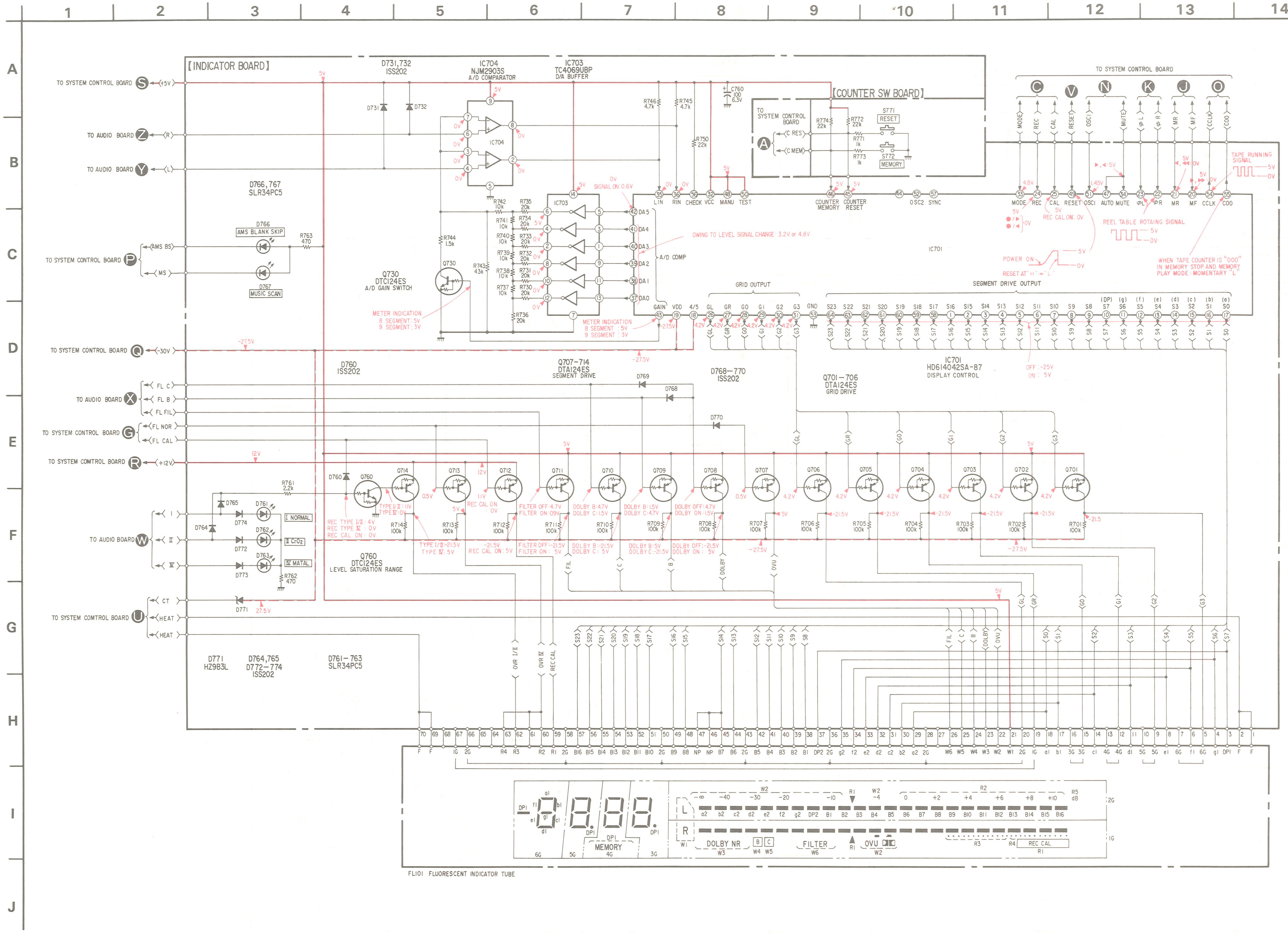
Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

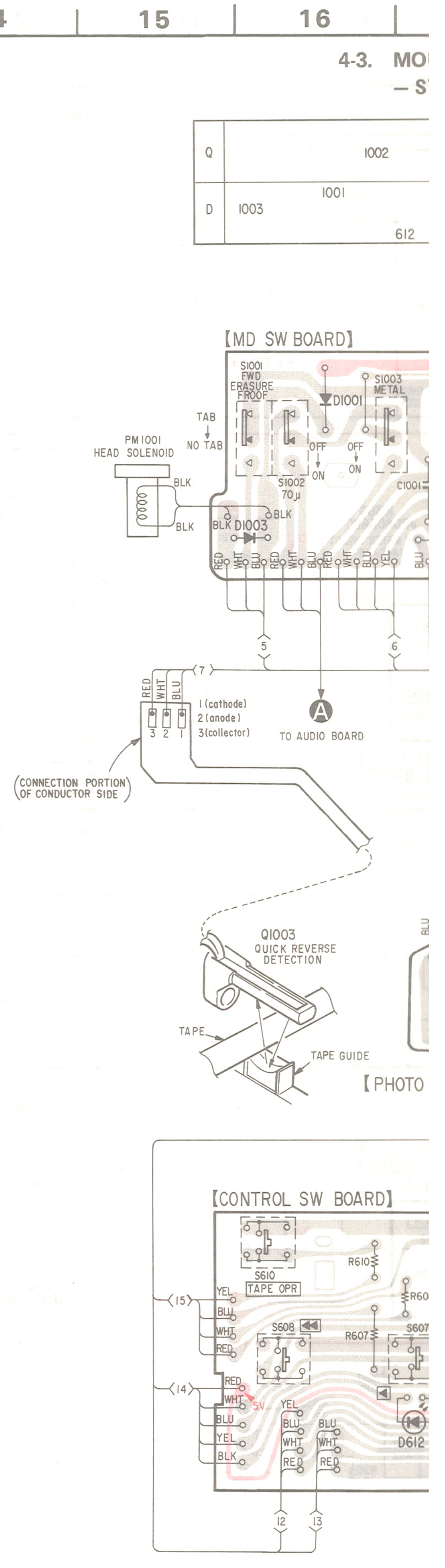

TO INDICATOR BOARD
A
REMOTE CONTROL BOARD
SYSTEM CONTROL BOARD
Q532 DTA124ES PAUSE RELEASE
Q541 2SC2785 PAUSE RELEASE
Q533 DTA124ES REC MUTE
Q531 DTA114ES REMOTE CONTROL AMP
IC503 M50761-417P SIRCS REMOTE CONTROL
SYNCRO REC MODE SW
J501 CONTROL S IN
J502 CONTROL S OUT
J503 SYNC
D531–533 ISS202
COUNTER MEMORY
COUNTER RESET
RESET
X IN
X OUT
X531
CONTROL SW BOARD (1/2)
S602 S605 S601 S604 S603 S608 S607 S606 S609 S610
CAL
TAPE OPR
S611 TIMER
PLAY OFF REC
TIMER SW BOARD
D541 ISS202
IC504 TC4019BP PORT EXPANDER
IC506 TC4069UBP BUFFER
D614 SLH54VC3
D611,612 SLH54PC3
D613 SLH54DC3
IC506 TC4069UBP BUFFER
Q584 DTC124ES
Q583 DTC124ES
CAL DRIVE
SYNCRO
TO AUDIO BOARD
TO INDICATOR BOARD
D E F G
REC BIAS CAL FL NOR FL CAL
CONTROL SW BOARD (1/2)
TO INDICATOR BOARD C
CAL MODE REC
TP3 (CAL MODE)
LED
CAL
BIAS
REC CAL ON : 0V
ALL MODES : 0V
IN SELECTION BETWEEN SELEC
"H" LEVEL : 5V
"L" LEVEL : 0V
"H" LEVEL AND MORE THAN 150m sec. IN FWD MODE : CHANGED TO REV
TAB : "H"
NO TAB : "L"
DIRECTION
CAL KEY
TAPE OPERATION KEY
TIMER OUT
INPUT EXTENT SELECT
QUICK
TAB FWD
TAB REV
DIRECTION SW
AMS SOLENOID
KICK
REC CAL SWITCH ON : 0V
TAPE OPR SWITCH ON : 0V
POWER SWITCH ON : MOMENTARY "L"
WHEN ⑤ IS AT "H", "L"
WHEN ⑤ IS AT "L", "H"
LEADING MOMENTORY
Q621,622 2SC2785 QUICK REVERSE DET
D201 ISS202
QUICK REVERSE
RV621
TP2 (QUICK)
DURING DET : 5.3V
DURING DET : 0V
DURING DET : 6V
DURING DET "H"
Q1003 SP303A QUICK REVERSE DET
Q1004 DTA124ES CASSETTE HALF DET
S612-1 S612-2 S612-3
ON ↔ OFF
DIRECTION MODE
DIRECTION SW BOARD (A)
S1005 CASSETTE HEAD DET
NOT INSERTED
INSERTED
S1001 FWD ERASURE PROOF
S1004 REV ERASURE PROOF
NO TAB
TAB
S1003 METAL
S1002 70μ
CASSETTE HALF INSERTED : 0V
NOT INSERTED : 4.6V
MD SW BOARD (1/2)
B
TO AUDIO BOARD
PL1003 REVERSE
PL1002 FORWARD
DIRECTION SW BOARD (B)
S1006 DIRECTION
REV FWD
Q563 2SD774 AMS SOLENOID DRIVE
Q569 DTA124ES AMS SOLENOID DRIVE
Q561 2SB734
Q566 DTC124ES
Q568 DTA124ES
AMS SOLENOID KICK
Q565 2SD774 DIRECTION SOLENOID DRIVE
Q571 DTA124 DIRECT SOLENOID
D1004
PM1002 AMS SOLENOID
D1002 10E2
MD SW BOARD (1/2)
LEADING EDGE MOMENTORY "L"
FWD → REV DIRI CHANGE


IC506 TC4069UBP BUFFER
Q584 DTC124ES
Q583 DTC124ES CAL DRIVE
Q586 DTC124ES SYNCRO REC MODE SW
IC502 CX10034 AMS AMP
Q521 DTC124ES AMS MUTE
IC505 TC4069UBP CLOCK OSC/MUTING
Q582 DTA124ES REC MUTE
Q581 DTA124ES LINE MUTE
TO AUDIO BOARD
TO INDICATOR BOARD
D582 1SS202
C591 0.022
BUFFER AMP
D521,522 1SS202
X581 (4.19MHz)
Q585 DTA124ES MUTE RELAY DRIVE
E MODEL
AEP MODEL
S001 POWER
VS001 VOLTAGE SELECTOR
C001 0.01/400V
AC IN
INTERNAL CONNECTION
NOT REPLACEABLE: BUILT IN TRANSFORMER
SELECTOR POSITION
120V
220V
240V
※ NOT REPLACEABLE: BUILT IN TRANSFORMER
"H" LEVEL : 5V
"L" LEVEL : 0V
AMS IN SELECTION : "H" BETWEEN SELECTION : "L"
4.19MHz
TAPE RUNNING SIGNAL
WHEN TAPE COUNTER IS "000" IN MEMORY STOP AND MEMORY PLAY MODE : MOMENTARY "L"
RESET AT "L" → "H"
POWER ON
ALL MODES : 0V
IC501
IC501 CX564-160 MECHANISM CONTROL
DIRECTION
REEL TABLE ROTATING SIGNAL
Q502 2SD1266 +7V VOL.REG.
D519 HZ7C3L
D517 HZ301L
D515,514,513 10E2
D501-504 10DF2 RECT
D505-508 10E2 RECT
Q503 2SD1266 +12V VOL.REG.
D520 HZ12B1L
Q505 2SB731 -30V VOL.REG.
T001 POWER TRANSFORMER
US, CANADIAN MODEL
F501 1.6A
F502 1.6A
Q571 DTA124ES DIRECTION SOLENOID DRIVE
Q570 DTA124ES HEAD SOLENOID DRIVE
D571 1SS202
Q551,552 2SA952 REEL MOTOR DRIVE
Q553,554 2SC2001 REEL MOTOR DRIVE
Q556 DTA124ES ROTATING SWITCH
Q555 DTA124ES ROTATING SWITCH
IC507 TC4069UBP COUNTER SCHMITT
Q566 DTC124ES AMS SOLENOID KICK
Q568 DTA124ES
Q565 2SD774 DIRECTION SOLENOID DRIVE
Q564 2SD774 HEAD SOLENOID DRIVE
Q567 DTC124ES HEAD SOLENOID KICK
Q562 2SB734
LEADING EDGE MOMENTARY "L"
FWD → REV DIRECTION CHANGED : "L"
Q504 2SD809 REEL MOTOR VOL.REG.
D518 HZ7AIL
D585 1SS202
D584,586 10E2
[PHOTO BOARD]
Q1001,1002 PH102 COUNTER DETECTION
PL1001 OFFSET LAMP
PM1003 DIRECTION SOLENOID
PM1001 HEAD SOLENOID
D1002 10E2
D1003-1005 1SS202
D1001 10E2
M1001 CAPSTAN MOTOR
M1002 REEL MOTOR
TO INDICATOR BOARD
IC505 TC4069UBP RESET
Q508 DTC124ES REEL MOTOR B+ SWITCH
Q501 2SD1266
Q506 2SC2785 +5V VOL.REG.
D509-512 10E2 RECT
HEAT
CT
RESET

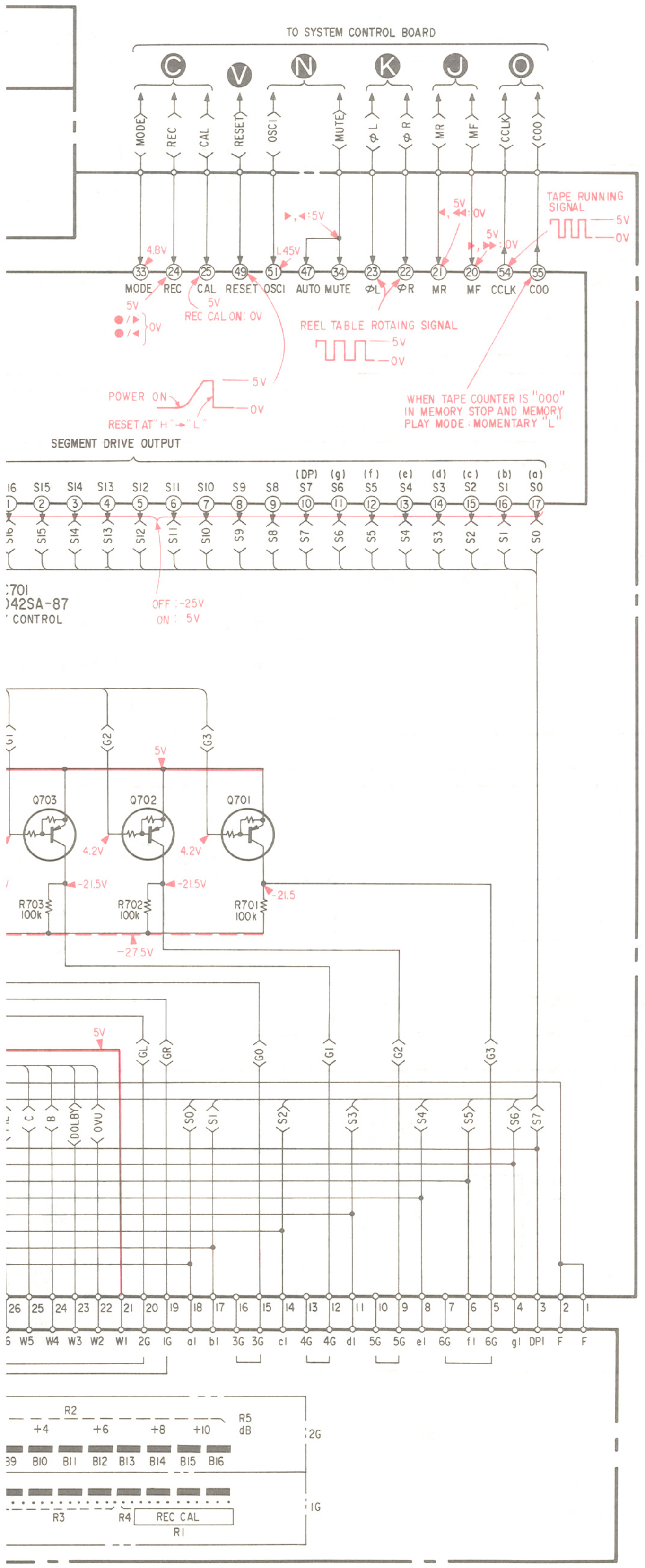
4-2. SCHEMATIC DIAGRAM
– DISPLAY SECTION –

See page

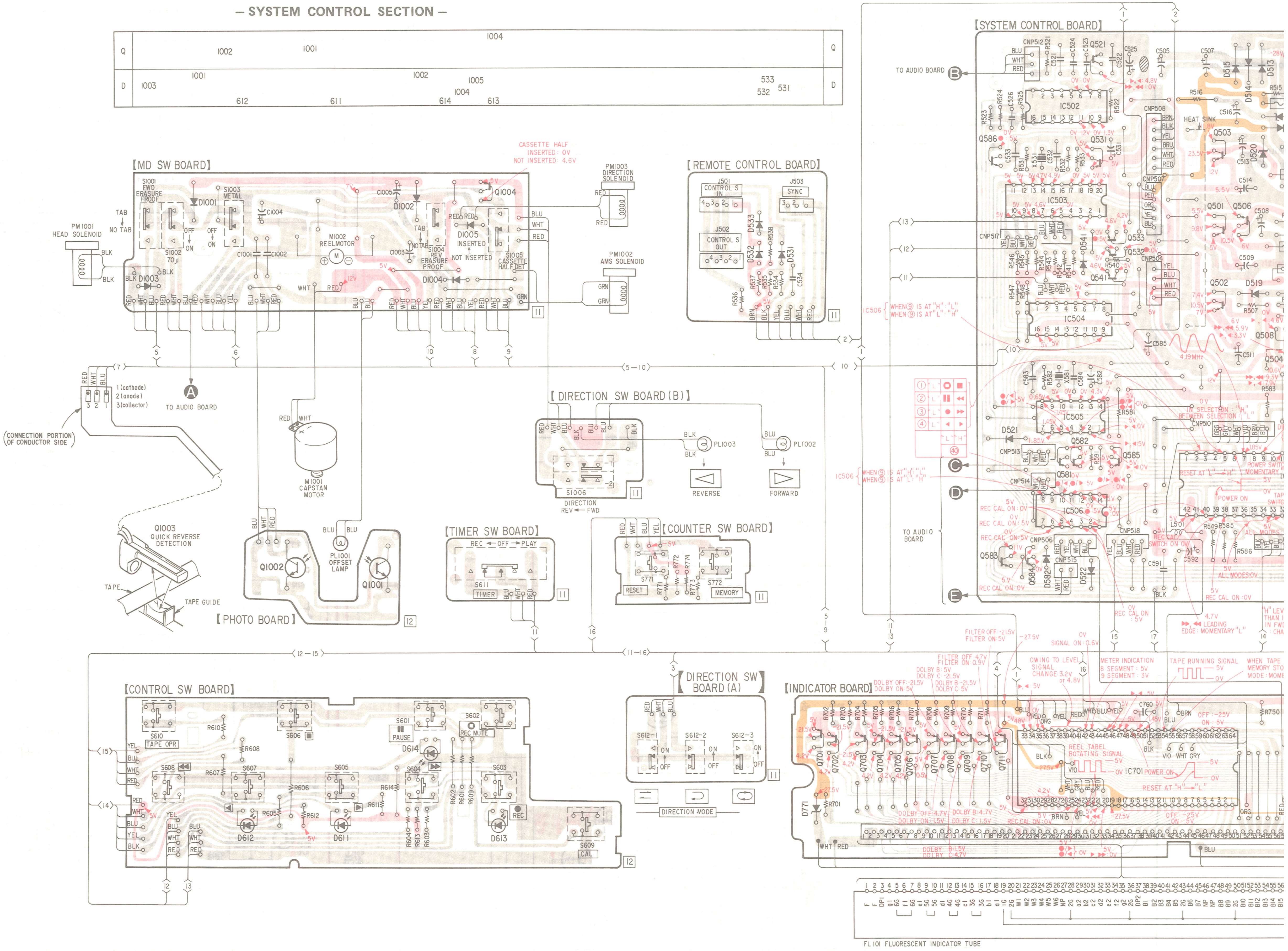

[INDICATOR BOARD]
[COUNTER SW BOARD]
TO SYSTEM CONTROL BOARD
TO AUDIO BOARD
D731,732 ISS202
IC704 NJM2903S A/D COMPARATOR
IC703 TC4069UBP D/A BUFFER
D766,767 SLR34PC5
AMS BLANK SKIP
MUSIC SCAN
Q730 DTC124ES A/D GAIN SWITCH
METER INDICATION 8 SEGMENT : 5V 9 SEGMENT : 3V
OWING TO LEVEL SIGNAL CHANGE 3.2V or 4.8V
A/D COMP
GRID OUTPUT
SEGMENT DRIVE OUTPUT
IC701
TAPE RUNNING SIGNAL
REEL TABLE ROTAING SIGNAL
POWER ON
RESET AT "H"
WHEN TAPE COUNTER IS "000" IN MEMORY STOP AND MEMORY PLAY MODE : MOMENTARY "L"
RESET
MEMORY
D760 ISS202
Q707–714 DTA124ES SEGMENT DRIVE
D768–770 ISS202
Q701–706 DTA124ES GRID DRIVE
IC701 HD614042SA-87 DISPLAY CONTROL
Q760 DTC124ES LEVEL SATURATION RANGE
I NORMAL
II CrO2
IV MATAL
REC TYPE I/II : 4V
REC TYPE IV : 0V
REC CAL ON : 0V
FILTER OFF : 4.7V
FILTER ON : 0.9V
DOLBY B : 4.7V
DOLBY C : 1.5V
DOLBY OFF : 4.7V
DOLBY ON : 1.5V
D771 HZ9B3L
D764,765 D772–774 ISS202
D761–763 SLR34PC5
DOLBY NR
FILTER
OVU
MEMORY
REC CAL
FL101 FLUORESCENT INDICATOR TUBE

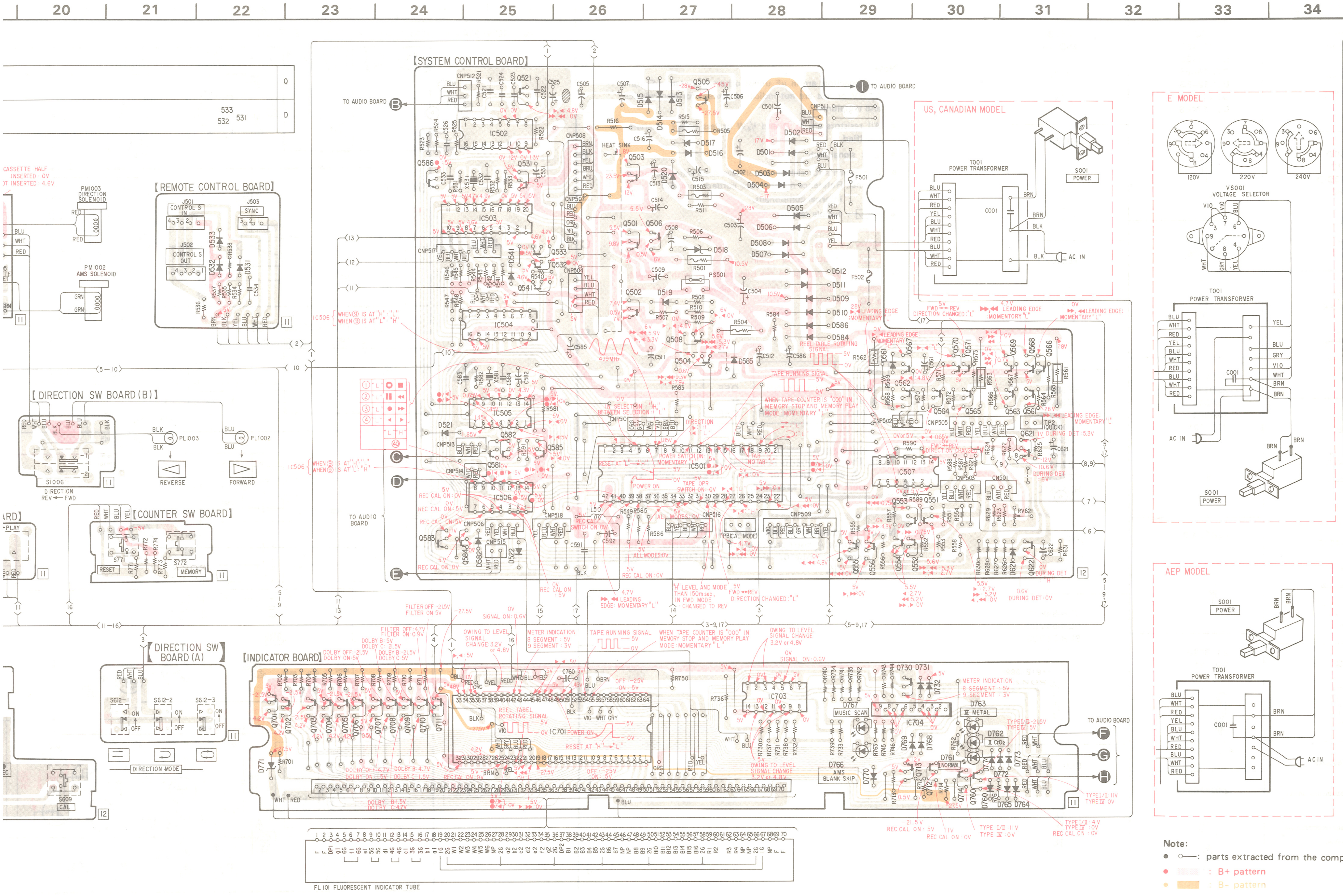

4-3. MO
– S
[MD SW BOARD]
PM1001 HEAD SOLENOID
S1001 FWD ERASURE PROOF
S1003 METAL
D1001
D1003
TAB
NO TAB
C1001
TO AUDIO BOARD
CONNECTION PORTION OF CONDUCTOR SIDE
1 (cathode)
2 (anode)
3 (collector)
Q1003 QUICK REVERSE DETECTION
TAPE
TAPE GUIDE
[PHOTO
[CONTROL SW BOARD]
S610 TAPE OPR
S608
S607
R607
R610
D612

See page 34 for semiconductor lead layouts.


TO SYSTEM CONTROL BOARD
MODE
REC
CAL
RESET
OSCI
AUTO MUTE
MR
MF
CCLK
COO
TAPE RUNNING SIGNAL
REC CAL ON: 0V
REEL TABLE ROTAING SIGNAL
POWER ON
RESET AT "H"→"L"
WHEN TAPE COUNTER IS "000" IN MEMORY STOP AND MEMORY PLAY MODE : MOMENTARY "L"
SEGMENT DRIVE OUTPUT
C701
μPD42SA-87
CONTROL
OFF : -25V
ON : 5V
Q703
Q702
Q701
R703 100k
R702 100k
R701 100k
-27.5V
REC CAL
DOLBY
OVU

4-3. MOUNTING DIAGRAM
— SYSTEM CONTROL SECTION —


16
17
18
19
20
21
22
23
24
25
26
[MD SW BOARD]
S1001 FWD ERASURE PROOF
S1003 METAL
D1001
D1002
D1003
D1004
D1005 INSERTED NOT INSERTED
S1004 REV ERASURE PROOF
S1005 CASSETTE HALF DET
M1002 REELMOTOR
Q1004
CASSETTE HALF INSERTED : 0V NOT INSERTED : 4.6V
PM1001 HEAD SOLENOID
PM1003 DIRECTION SOLENOID
PM1002 AMS SOLENOID
TAB
NO TAB
1 (cathode)
2 (anode)
3 (collector)
TO AUDIO BOARD
CONNECTION PORTION OF CONDUCTOR SIDE
M1001 CAPSTAN MOTOR
Q1003 QUICK REVERSE DETECTION
TAPE
TAPE GUIDE
[PHOTO BOARD]
Q1002
PL1001 OFFSET LAMP
Q1001
[REMOTE CONTROL BOARD]
J501 CONTROL S IN
J503 SYNC
J502 CONTROL S OUT
[DIRECTION SW BOARD (B)]
S1006 DIRECTION REV ← → FWD
PL1003
PL1002
REVERSE
FORWARD
[TIMER SW BOARD]
REC ← OFF → PLAY
S611 TIMER
[COUNTER SW BOARD]
S771 RESET
S772 MEMORY
[CONTROL SW BOARD]
S610 TAPE OPR
S606
S601 PAUSE
S602 REC MUTE
S608
S607
S605
S604
S603
S609 CAL
D612
D611
D613
D614
[DIRECTION SW BOARD (A)]
S612-1
S612-2
S612-3
DIRECTION MODE
[SYSTEM CONTROL BOARD]
TO AUDIO BOARD
IC502
IC503
IC504
IC505
IC506
IC701
HEAT SINK
4.19MHz
WHEN ⑨ IS AT "H"→"L"
WHEN ⑨ IS AT "L"→"H"
REC CAL ON : 0V
REC CAL ON : 5V
POWER ON
RESET AT "H"→"L"
[INDICATOR BOARD]
DOLBY OFF : -21.5V
DOLBY ON : 5V
FILTER OFF : -21.5V
FILTER ON : 5V
OWING TO LEVEL SIGNAL CHANGE 3.2V or 4.8V
METER INDICATION 8 SEGMENT : 5V 9 SEGMENT : 3V
TAPE RUNNING SIGNAL
WHEN TAPE MEMORY STOP MODE : MOMENTARY
REEL TABEL ROTATING SIGNAL
IC701 POWER ON
RESET AT "H"→"L"
LEADING EDGE : MOMENTARY "L"
FL101 FLUORESCENT INDICATOR TUBE

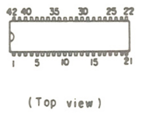

20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
[SYSTEM CONTROL BOARD]
[REMOTE CONTROL BOARD]
[DIRECTION SW BOARD (B)]
[COUNTER SW BOARD]
DIRECTION SW BOARD (A)
[INDICATOR BOARD]
US, CANADIAN MODEL
E MODEL
AEP MODEL
T001 POWER TRANSFORMER
S001 POWER
V5001 VOLTAGE SELECTOR
120V
220V
240V
AC IN
TO AUDIO BOARD
PM1003 DIRECTION SOLENOID
PM1002 AMS SOLENOID
CASSETTE HALF INSERTED : 0V
NOT INSERTED : 4.6V
S1006 DIRECTION REV ← → FWD
REVERSE
FORWARD
RESET
MEMORY
DIRECTION MODE
S609 CAL
FL101 FLUORESCENT INDICATOR TUBE
IC501
IC502
IC503
IC504
IC505
IC506
IC507
IC701
IC703
IC704
MUSIC SCAN
AMS BLANK SKIP
NORMAL
II CrO2
IV METAL
HEAT SINK
4.19MHz

Q, IC	D
521 505	514 515, 513
IC502 586, 531, 503	517, 502 516, 501 520, 503 504
IC503 501, 506 533 532 541 502	505 506 508 518, 507 512 541, 511 519, 509 510
IC504 508 504 567, 570, 571 569, 568, 566	586 584 585 561
562, 564, 565 563, 561 IC505 581, 582 585 621	521
IC501 IC507 IC506 553, 551 583, 584 555, 556 554, 552, 622	582 522 621
730 IC703 IC701 IC704 701, 702, 703, 704 705, 706, 707, 708 709, 710, 711	731, 732
713, 712 714, 760	767, 763 766, 762 761 771, 769 774, 768 772, 773 770 760, 765 764
Q, IC	D

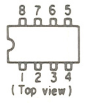
Note:
- ● ○—: parts extracted from the component side.
- ● ▨ : B+ pattern
- ● ▨ : B- pattern

- **Semiconductor Lead Layouts**

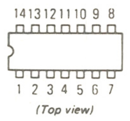
CX20187
CX564-160


42 40 35 30 25 22
1 5 10 15 21
(Top view)

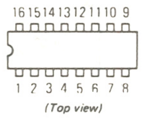
NJM4560D
µPC4557C
NJM2043D-D
µPC4558C


8 7 6 5
1 2 3 4
(Top view)

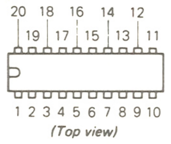
µPD4066BC
TC4069UBP


14 13 12 11 10 9 8
1 2 3 4 5 6 7
(Top view)

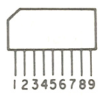
CX10034
TC4019BP


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

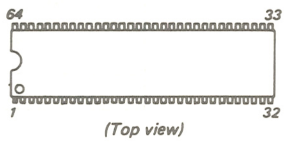
M50761-417P


20 18 16 14 12
19 17 15 13 11
1 2 3 4 5 6 7 8 9 10
(Top view)

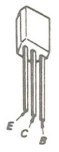
NJM2903S



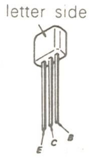
HD614042SA87


64
33
1
32
(Top view)

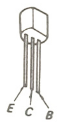
2SC2458
DTC144ES
DTC114ES
DTA144ES
DTC124ES
DTA114ES
DTA124ES



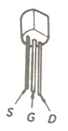
2SC3623-L
2SC2785


letter side
E C B

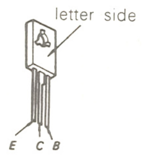
2SC945-P
2SD1152
2SA844
2SA952
2SC2001



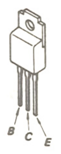
2SK30A-0



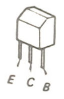
2SD809-K
2SB731


letter side
E C B

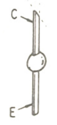
2SD1266-Q



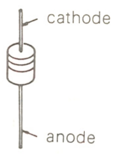
2SB734
2SD774



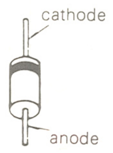
PH102



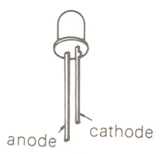
1SS202-1


cathode
anode

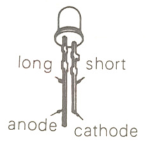
HZ9B3L
HZ6A1L
HZ11C1L
10DF2
10E2
HZ30-2L
HZ7A1L
HZ7C3L
HZ12B1L


cathode
anode

SLH-54PC3
SLH-54VC3
SLH-54DC3


anode
cathode

SLR-34PC5


long
short
anode
cathode

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $^1/_4$W or less unless otherwise specified.
- ⇨ : signal path.
- Components for right channel have same values as for left channel. Reference numbers are corded from 200.
- △ : internal component.
- ⊣w∿⊢ : fusible resistor.
- ▬▬ : B+ bus.
- ▬ ▬ ▬ : B– bus.
- ☐ : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Readings are taken under no-signal conditions with a VOM (50kΩ/V).

▶ : FWD ◀◀ : REW ◀ : REV
▶▶: FF ■ : STOP ● : REC

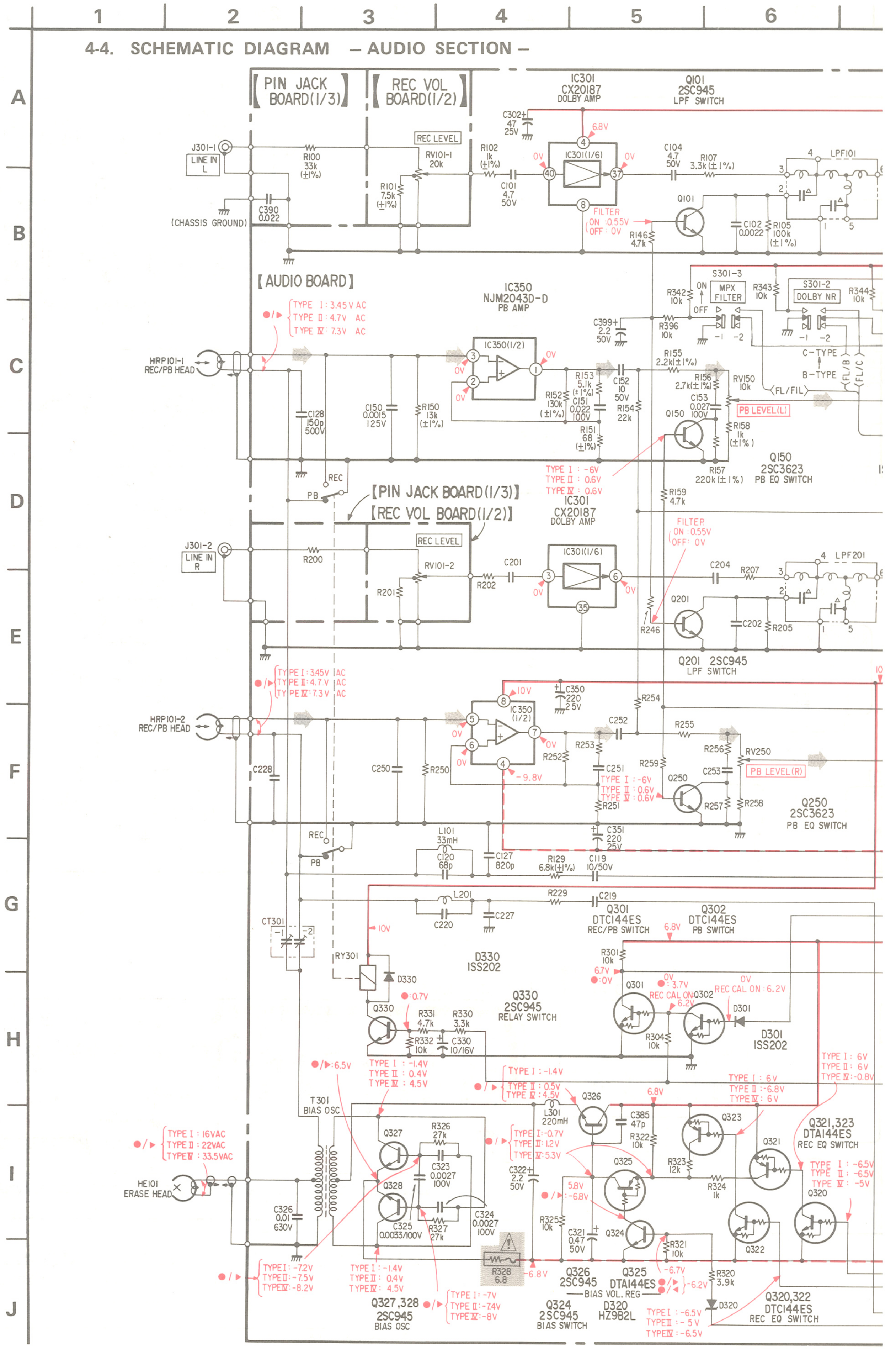
- Switch

Ref. No.	Switch	Position
S301-1	DOLBY NR	OFF
S301-2	DOLBY NR	B
S301-3	MPX FILTER	OFF

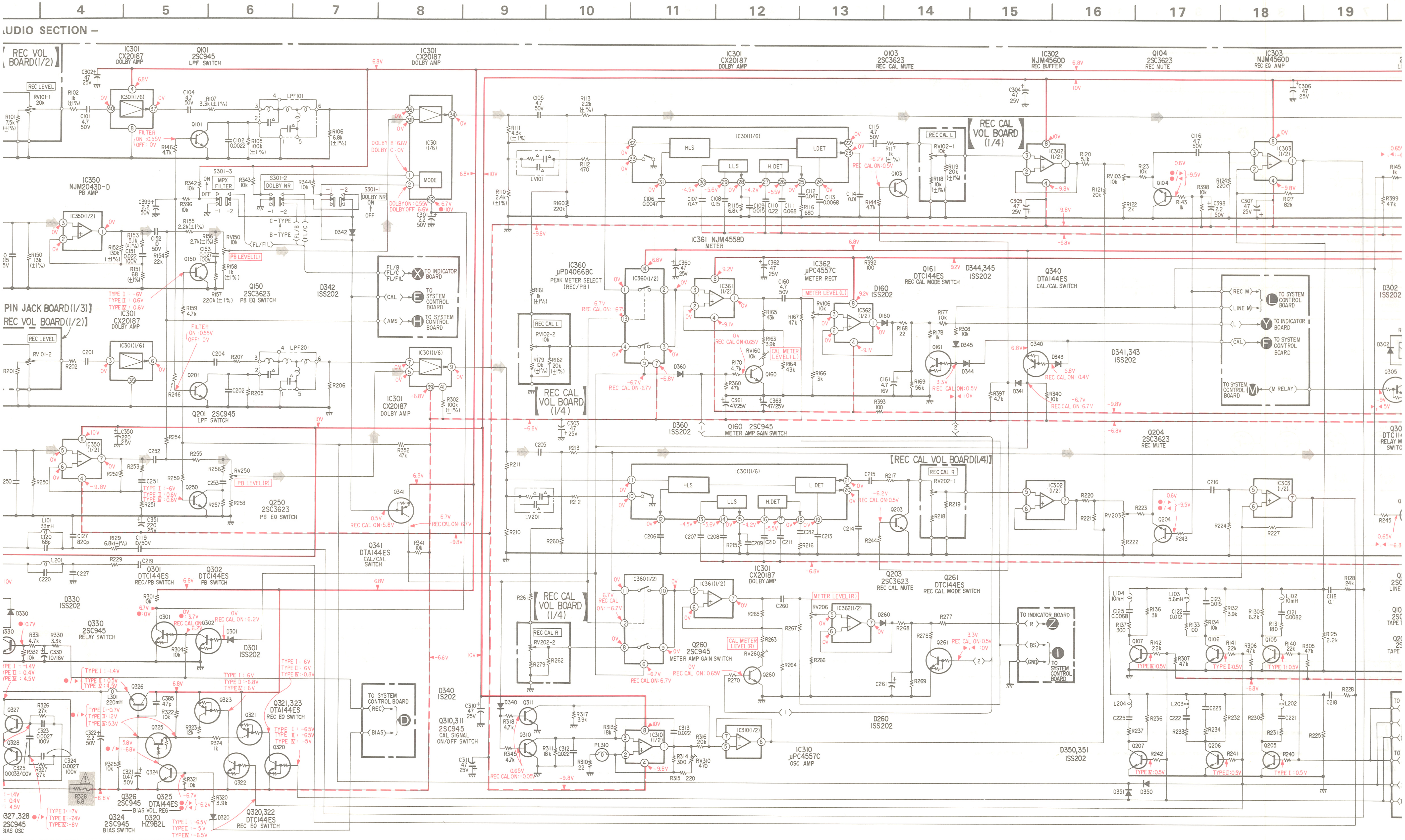
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

4-4. SCHEMATIC DIAGRAM – AUDIO SECTION –


1 2 3 4 5 6
A B C D E F G H I J
[PIN JACK BOARD(1/3)]
[REC VOL BOARD(1/2)]
IC301 CX20187 DOLBY AMP
Q101 2SC945 LPF SWITCH
J301-1 LINE IN L
(CHASSIS GROUND)
REC LEVEL
RV101-1 20k
LPF101
[AUDIO BOARD]
IC350 NJM2043D-D PB AMP
HRP101-1 REC/PB HEAD
S301-3 MPX FILTER
S301-2 DOLBY NR
C-TYPE
B-TYPE
PB LEVEL(L)
Q150 2SC3623 PB EQ SWITCH
[PIN JACK BOARD(1/3)]
[REC VOL BOARD(1/2)]
J301-2 LINE IN R
RV101-2
LPF201
Q201 2SC945 LPF SWITCH
HRP101-2 REC/PB HEAD
RV250
PB LEVEL(R)
Q250 2SC3623 PB EQ SWITCH
L101 33mH
CT301
RY301
D330 1SS202
Q330 2SC945 RELAY SWITCH
Q301 DTC144ES REC/PB SWITCH
Q302 DTC144ES PB SWITCH
D301 1SS202
T301 BIAS OSC
HE101 ERASE HEAD
L301 220mH
Q327,328 2SC945 BIAS OSC
Q326 2SC945
Q325 DTA144ES BIAS VOL. REG
Q324 2SC945 BIAS SWITCH
D320 HZ9B2L
Q321,323 DTA144ES REC EQ SWITCH
Q320,322 DTC144ES REC EQ SWITCH
FILTER ON: 0.55V OFF: 0V
TYPE I: 3.45V AC
TYPE II: 4.7V AC
TYPE IV: 7.3V AC
REC CAL ON: 6.2V
TYPE I: 16VAC
TYPE II: 22VAC
TYPE IV: 33.5VAC

AUDIO SECTION –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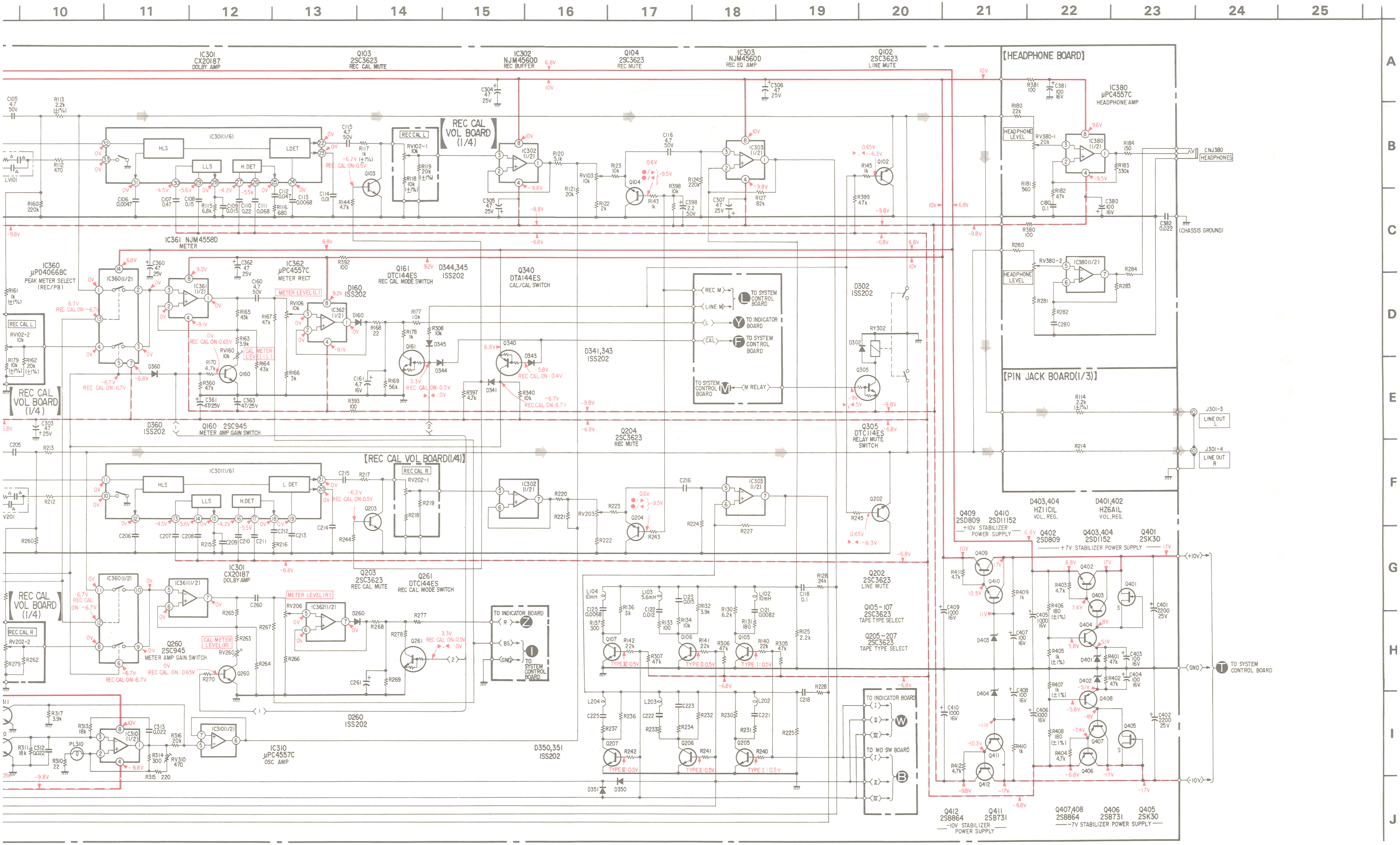
19
REC VOL BOARD(1/2)
REC LEVEL
RV101-1 20k
IC301 CX20187 DOLBY AMP
Q101 2SC945 LPF SWITCH
LPF101
IC350 NJM2043D-D PB AMP
IC350(1/2)
S301-3
MPX FILTER
S301-2 DOLBY NR
S301-1 DOLBY NR
C-TYPE
B-TYPE
FL/FIL
PB LEVEL(L)
Q150 2SC3623 PB EQ SWITCH
D342 1SS202
TYPE I : -6V
TYPE II : 0.6V
TYPE IV : 0.6V
FILTER ON : 0.55V OFF : 0V
DOLBY ON : 0.55V
DOLBY OFF : 5.6V
PIN JACK BOARD(1/3)
REC VOL BOARD(1/2)
RV101-2
LPF201
Q201 2SC945 LPF SWITCH
IC301 CX20187 DOLBY AMP
TO INDICATOR BOARD
TO SYSTEM CONTROL BOARD
AMS
FL/B
FL/C
CAL
MODE
IC350(1/2)
PB LEVEL(R)
Q250 2SC3623 PB EQ SWITCH
Q341 DTA144ES CAL/CAL SWITCH
REC CAL ON : 5.8V
REC CAL ON : 6.7V
Q301 DTC144ES REC/PB SWITCH
Q302 DTC144ES PB SWITCH
D330 1SS202
Q330 2SC945 RELAY SWITCH
D301 1SS202
Q326 2SC945
Q325 DTA144ES
BIAS VOL. REG
Q327,328 2SC945 BIAS OSC
Q324 2SC945 BIAS SWITCH
D320 HZ9B2L
Q321,323 DTA144ES REC EQ SWITCH
Q320,322 DTC144ES REC EQ SWITCH
TO SYSTEM CONTROL BOARD
REC
BIAS
D340 1SS202
Q310,311 2SC945 CAL SIGNAL ON/OFF SWITCH
IC310 μPC4557C OSC AMP
PL310
RV310 470
LV101
LV201
IC360 μPD4066BC PEAK METER SELECT (REC/PB)
REC CAL L
RV102-2
REC CAL VOL BOARD (1/4)
IC301(1/6)
HLS
LDET
LLS
H.DET
IC361 NJM4558D METER
IC362 μPC4557C METER RECT
METER LEVEL(L)
RV106
CAL METER LEVEL(L)
Q160 2SC945 METER AMP GAIN SWITCH
D360 1SS202
D160 1SS202
Q161 DTC144ES REC CAL MODE SWITCH
D344,345 1SS202
Q340 DTA144ES CAL/CAL SWITCH
D341,343 1SS202
IC301 CX20187 DOLBY AMP
Q103 2SC3623 REC CAL MUTE
REC CAL L
RV102-1
REC CAL VOL BOARD (1/4)
IC302 NJM4560D REC BUFFER
Q104 2SC3623 REC MUTE
IC303 NJM4560D REC EQ AMP
REC M
LINE M
TO SYSTEM CONTROL BOARD
TO INDICATOR BOARD
TO SYSTEM CONTROL BOARD
M RELAY
Q204 2SC3623 REC MUTE
D302 1SS202
[REC CAL VOL BOARD(1/4)]
REC CAL R
RV202-1
IC302(1/2)
IC303(1/2)
L DET
Q203
REC CAL ON : 0.5V
REC CAL ON : 0.65V
REC CAL ON : 6.7V
REC CAL VOL BOARD (1/4)
REC CAL R
RV202-2
IC360(1/2)
IC361(1/2)
IC362(1/2)
METER LEVEL(R)
RV206
CAL METER LEVEL(R)
RV260
Q260 2SC945 METER AMP GAIN SWITCH
Q203 2SC3623 REC CAL MUTE
Q261 DTC144ES REC CAL MODE SWITCH
D260 1SS202
TO INDICATOR BOARD
TO SYSTEM CONTROL BOARD
D350,351 1SS202
IC310(1/2)
L104 10mH
L103 5.6mH
L102 10mH
Q107
Q106
Q105
Q207
Q206
Q205
TYPE IV : 0.5V
TYPE II : 0.5V
TYPE I : 0.5V
TAPE
LINE


10
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21
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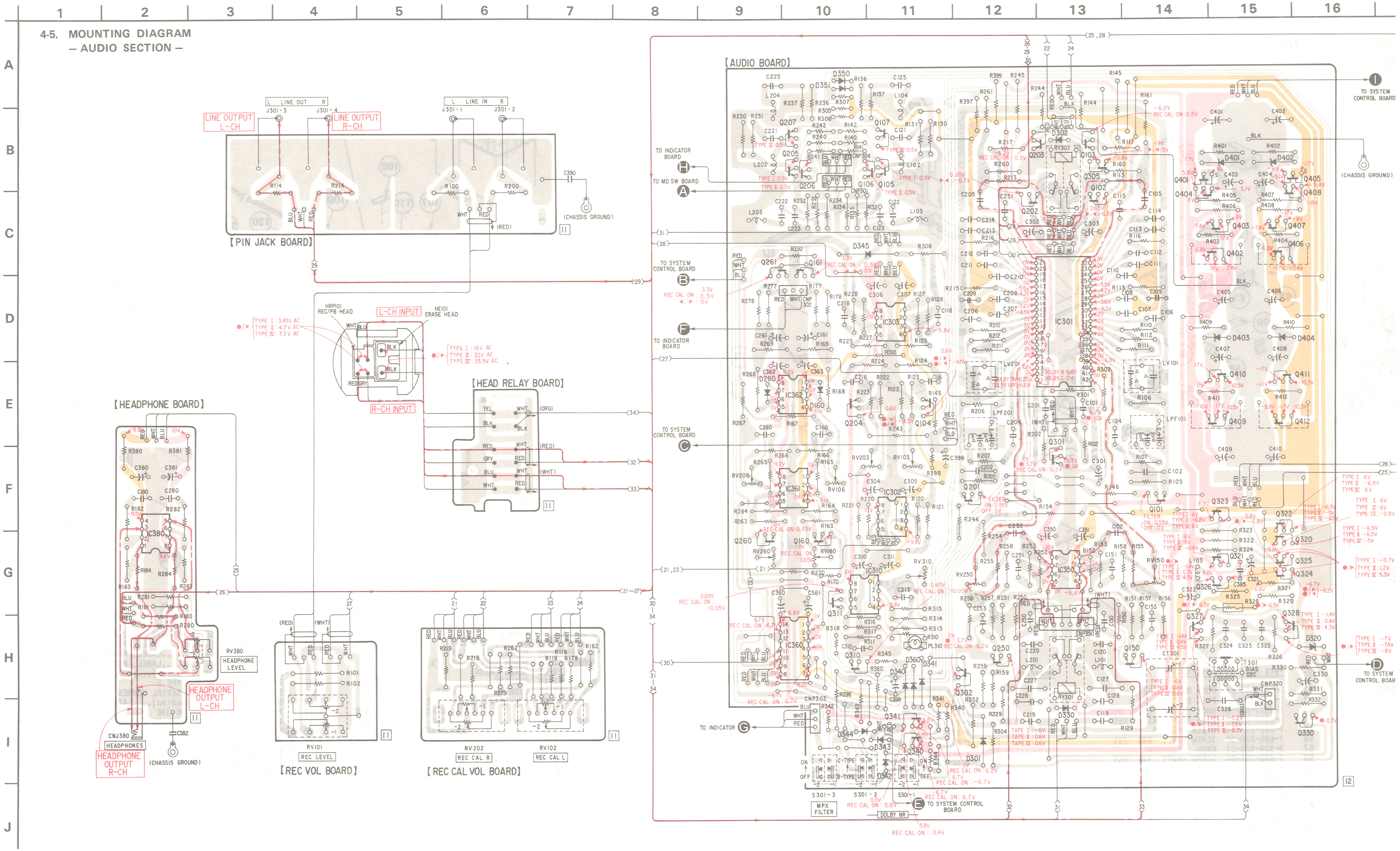
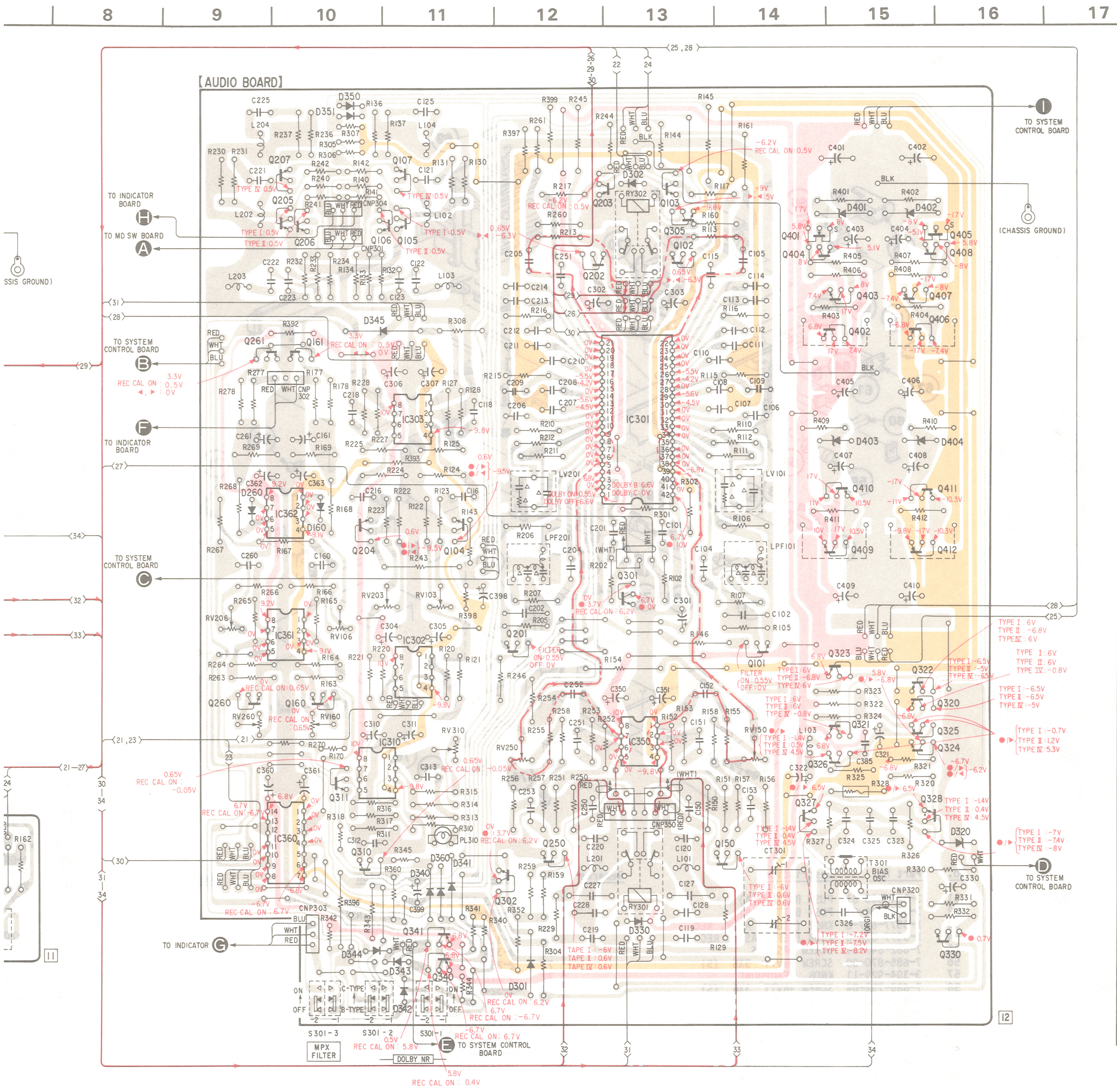
24
25
A
B
C
D
E
F
G
H
I
J
IC301 CX20187 DOLBY AMP
Q103 2SC3623 REC CAL MUTE
IC302 NJM4560D REC BUFFER
Q104 2SC3623 REC MUTE
IC303 NJM4560D REC EQ AMP
Q102 2SC3623 LINE MUTE
[HEADPHONE BOARD]
IC380 μPC4557C HEADPHONE AMP
HEADPHONE LEVEL
CNJ380 HEADPHONES
(CHASSIS GROUND)
IC301(1/6)
HLS
LDET
LLS
H.DET
REC CAL L
REC CAL VOL BOARD (1/4)
REC CAL ON: 0.5V
IC361 NJM4558D METER
IC360 μPD4066BC PEAK METER SELECT (REC/PB)
IC362 μPC4557C METER RECT
METER LEVEL (L)
Q161 DTC144ES REC CAL MODE SWITCH
D344,345 1SS202
D160 1SS202
Q340 DTA144ES CAL/CAL SWITCH
D341,343 1SS202
D302 1SS202
RY302
CAL METER LEVEL (L)
REC M
LINE M
TO SYSTEM CONTROL BOARD
TO INDICATOR BOARD
CAL
M RELAY
[PIN JACK BOARD(1/3)]
J301-3 LINE OUT L
J301-4 LINE OUT R
D360 1SS202
Q160 2SC945 METER AMP GAIN SWITCH
Q204 2SC3623 REC MUTE
Q305 DTC114ES RELAY MUTE SWITCH
[REC CAL VOL BOARD(1/4)]
REC CAL R
IC302 (1/2)
IC303 (1/2)
Q409 2SD809
Q410 2SD1152
+10V STABILIZER POWER SUPPLY
D403,404 HZ11CIL VOL. REG.
D401,402 HZ6AIL VOL. REG.
Q402 2SD809
Q403,404 2SD1152
Q401 2SK30
+7V STABILIZER POWER SUPPLY
IC301 CX20187 DOLBY AMP
Q203 2SC3623 REC CAL MUTE
Q261 DTC144ES REC CAL MODE SWITCH
Q202 2SC3623 LINE MUTE
Q105-107 2SC3623 TAPE TYPE SELECT
Q205-207 2SC3623 TAPE TYPE SELECT
METER LEVEL (R)
CAL METER LEVEL (R)
Q260 2SC945 METER AMP GAIN SWITCH
TO INDICATOR BOARD
TO SYSTEM CONTROL BOARD
TO SYSTEM CONTROL BOARD
TYPE II: 0.5V
TYPE III: 0.5V
TYPE I: 0.5V
D260 1SS202
IC310 μPC4557C OSC AMP
PL310
D350,351 1SS202
TO INDICATOR BOARD
TO MD SW BOARD
Q412 2SB864
Q411 2SB731
-10V STABILIZER POWER SUPPLY
Q407,408 2SB864
Q406 2SB731
Q405 2SK30
-7V STABILIZER POWER SUPPLY
(+10V)
(GND)
(-10V)

4-5. MOUNTING DIAGRAM
— AUDIO SECTION —


[PIN JACK BOARD]
LINE OUTPUT L-CH
LINE OUTPUT R-CH
L LINE OUT R
J301-3
J301-4
L LINE IN R
J301-1
J301-2
(CHASSIS GROUND)
HRP101 REC/PB HEAD
HE101 ERASE HEAD
L-CH INPUT
R-CH INPUT
[HEAD RELAY BOARD]
[HEADPHONE BOARD]
RV380 HEADPHONE LEVEL
HEADPHONE OUTPUT L-CH
HEADPHONE OUTPUT R-CH
CNJ380 HEADPHONES
[REC VOL BOARD]
RV101 REC LEVEL
[REC CAL VOL BOARD]
RV202 REC CAL R
RV102 REC CAL L
[AUDIO BOARD]
TO INDICATOR BOARD
TO MD SW BOARD
TO SYSTEM CONTROL BOARD
TO SYSTEM CONTROL BOARD
TO INDICATOR BOARD
TO SYSTEM CONTROL BOARD
TO INDICATOR
TO SYSTEM CONTROL BOARD
(CHASSIS GROUND)
IC301
IC350
IC303
IC302
IC360
IC361
IC362
IC310
IC380
S301-3 MPX FILTER
S301-2 DOLBY NR
S301-1
T301 BIAS OSC
RY301
RY302
LPF101
LPF201
LV101
LV201

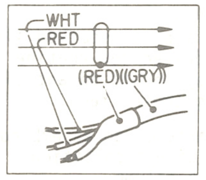

8
9
10
11
12
13
14
15
16
17
[AUDIO BOARD]
TO INDICATOR BOARD Ⓗ
TO MD SW BOARD Ⓐ
TO SYSTEM CONTROL BOARD Ⓑ
TO INDICATOR BOARD Ⓕ
TO SYSTEM CONTROL BOARD Ⓒ
TO INDICATOR Ⓖ
TO SYSTEM CONTROL BOARD Ⓔ
TO SYSTEM CONTROL BOARD Ⓘ
TO SYSTEM CONTROL BOARD Ⓓ
(CHASSIS GROUND)
SSIS GROUND)
IC301
IC303
IC302
IC310
IC350
IC360
IC361
IC362
LV101
LV201
LPF101
LPF201
RY301
RY302
T301 BIAS OSC
CNP350
CNP320
CNP303
S301-3 MPX FILTER
S301-2
S301-1 DOLBY NR
ON
OFF
C-TYPE
B-TYPE
REC CAL ON
DOLBY B: 6.6V
DOLBY C: 0V
11
12

Q , IC	D
	350 351
207 107	
203 103	302
205 206	
106 105 305	401 402
401 405 404 408	
202 102	
403 407	
402 406	345
261 161	
IC303 IC301	
	403 404
410 411	
IC362	260 160
204 104	
409 412	
301	
IC380 IC361	
IC302 201	
101	
323	
322	
320	
260 160	
325	
IC350 321	
324	
326	
311 IC310	
327 328	
IC360	
	320
310 250 150	341
302	360
	340
341	330
330	
340	
	344 301 343 342
Q , IC	D

18
19

A
B
C
D
E
F
G
H
I
J

- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

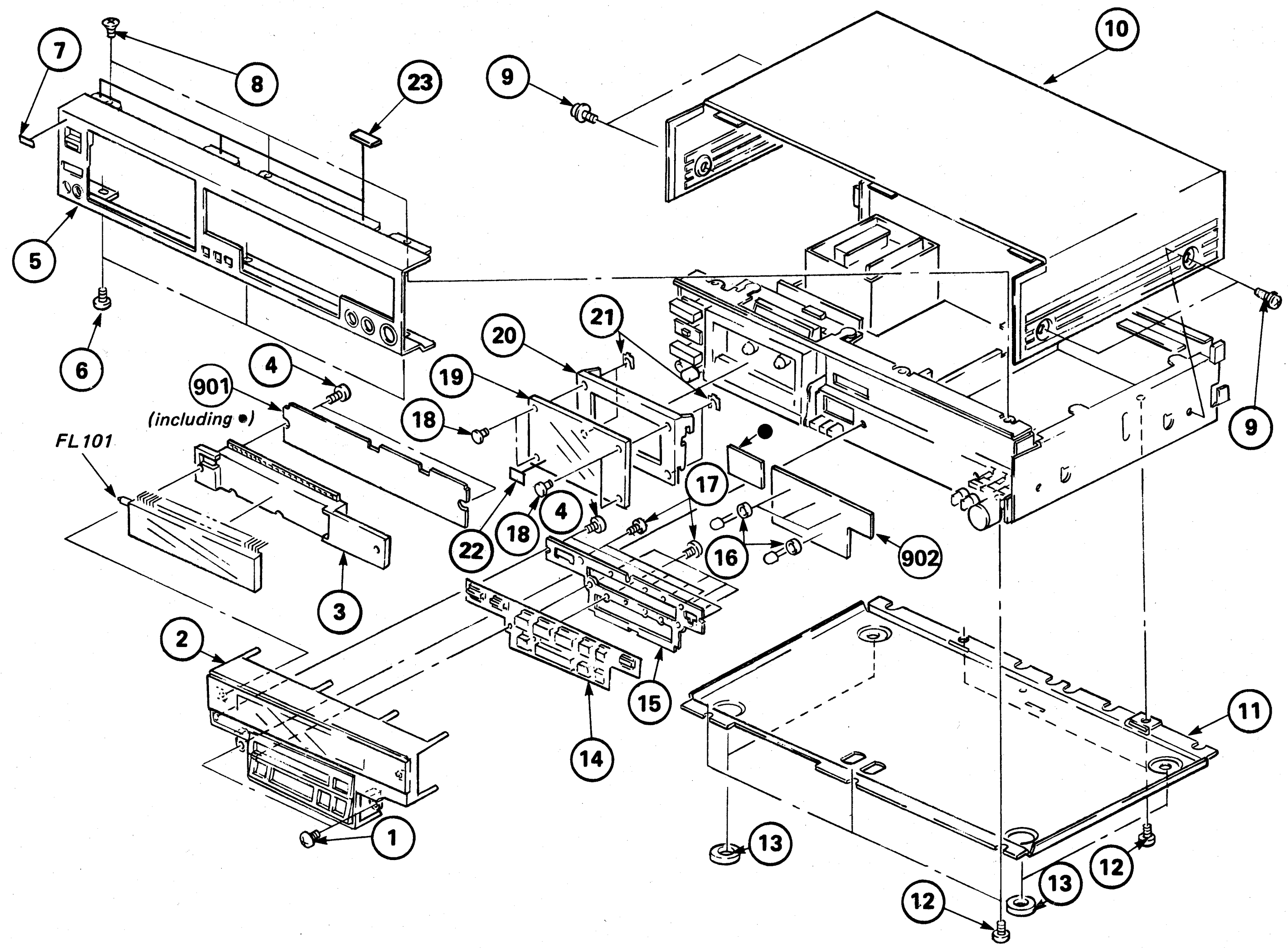
- ○— : parts extracted from the component side.
- ▬ ▬▶▬ : signal path
- ▬▬▬▶ : L-CH signal path
- ▬·▬·▶ : R-CH signal path
- ▨ : B+ pattern
- ▨ : B- pattern

SECTION 5
EXPLODED VIEW AND PARTS LIST

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

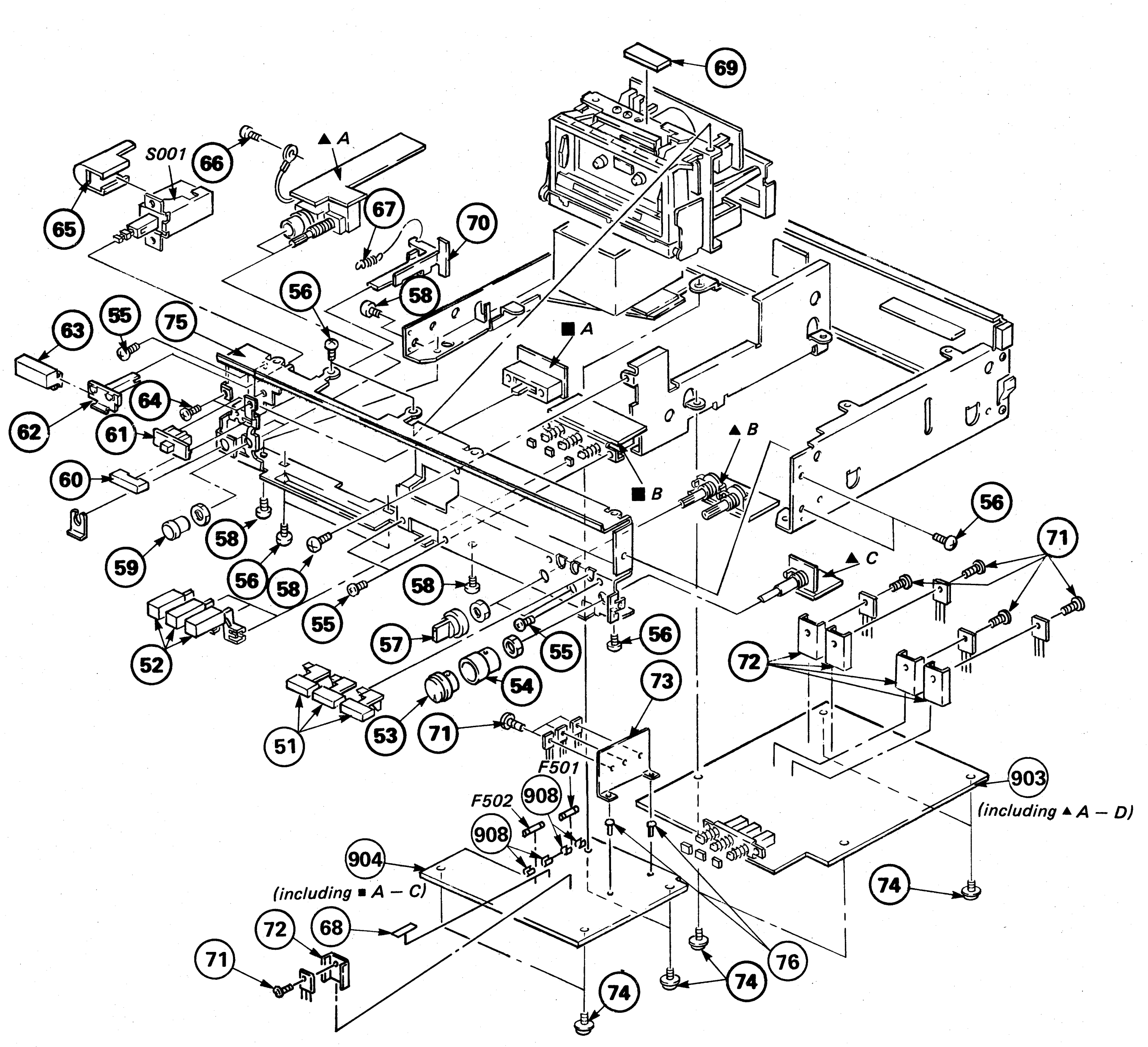
(1)



No.	Part No.	Description	Remarks
1	7-685-752-04	SCREW +BVTT 3X8 (S)	
2	X-3324-803-1	ESCUTCHEON ASSY	
3	*3-324-823-01	HOLDER, FL TUBE	
4	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
5	A-2310-283-A	(E)............PANEL ASSY, FRONT	
	A-2310-300-A	(US,Canadian,AEP,G-AEP) ...PANEL ASSY, FRONT	
6	7-685-870-09	SCREW +BVTT 3X5 (S)	
7	3-304-974-01	EMBLEM, SONY	
8	7-682-247-04	SCREW +K 3X6	
9	4-820-330-31	SCREW, BW, PLUS MINUS	
10	3-575-539-41	CASE	
11	*3-575-538-21	PLATE, BUTTOM	
12	3-703-108-21	SCREW +BV 3X6, S TIGHT	

No.	Part No.	Description	Remarks
13	3-576-731-00	FELT (H)	
14	X-3324-802-1	BUTTON ASSY, CONTROL	
15	*3-324-825-01	RETAINER, SPRING	
16	*4-901-657-11	SPACER (A), LED	
17	7-685-531-14	SCREW +BTP 2.6X4 TYPE2 N-S	
18	3-324-814-01	PIN, STOPPER, CASSETTE WINDOW	
19	3-324-808-01	WINDOW, CASSETTE	
20	3-324-826-01	LID, CASSETTE	
21	3-324-813-01	SPRING	
22	3-703-710-41	STICKER, SONY SYMBOL (12)	
23	9-911-837-XX	CUSHION (B), FILTER	
901	*1-615-088-11	PC BOARD, INDICATOR	
902	*1-615-089-11	PC BOARD, CONTROL SW	

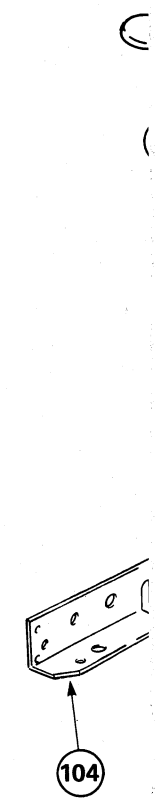
(2)



No.	Part No.	Description	Remarks
51	3-324-803-01	PUSH BUTTON (A)	
52	3-324-804-01	PUSH BUTTON (B)	
53	X-3577-617-0	KNOB (RIGHT) ASSY, REC	
54	X-3577-618-0	KNOB (LEFT) ASSY, REC	
55	7-682-647-01	SCREW +PS 3X6	
56	7-685-870-09	SCREW +BVTT 3X5 (S)	
57	3-304-929-11	KNOB, HEADPHONE	
58	7-685-752-04	SCREW +BVTT 3X8 (S)	
59	4-902-067-11	KNOB, CONTROL	
60	3-304-419-31	BUTTON, EJECT	
61	3-307-538-21	KNOB, SWITCH, TIMER	
62	*3-324-818-01	JOINT (K), KNOB	
63	3-318-911-81	KNOB (POWER.L), T MOLD	
64	7-621-773-86	SCREW +B 2.6X4	
65	3-575-524-00	COVER, POWER SWITCH	

No.	Part No.	Description	Remarks
66	3-703-108-21	SCREW +BV 3X6, S TIGHT	
67	3-534-558-00	SPRING, TENSION	
68	*3-701-948-16	(AEP,G-AEP,E)...LABEL, FUSE	
69	*3-324-837-01	CUSHION	
70	*3-324-802-01	SLIDER, EJECT	
71	2-259-121-00	SCREW, TR	
72	*3-312-615-11	HEAT SINK	
73	*3-324-805-01	HEAT SINK	
74	7-685-871-01	SCREW +BVTT 3X6 (S)	
75	*X-3324-805-1	CHASSIS ASSY, AMPLIFIER	
76	*3-324-832-01	SHAFT, FIXED, HEAT SINK	
903	*A-2056-263-A	MOUNTED PCB, AUDIO	
904	*A-2056-278-A	MOUNTED PCB, SYSTEM CONTROL	
908	1-533-162-00	HOLDER, FUSE	

(3)



No.	Part N
101	*3-324-
102	*3-322-
103	*3-322-
104	*3-304-
105	7-685-
106	4-893-
107	9-911-
108	9-911-
109	3-703-
	3-703-
110	*3-324-
	*3-324-
111	7-685-
112	7-685-
113	3-646-

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number spec

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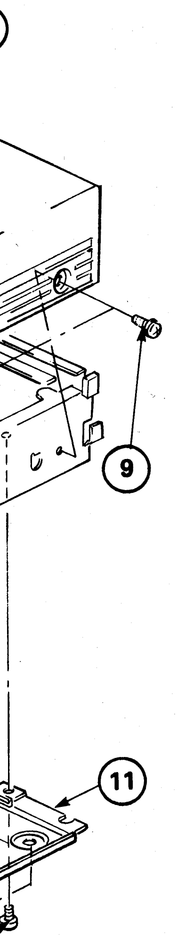
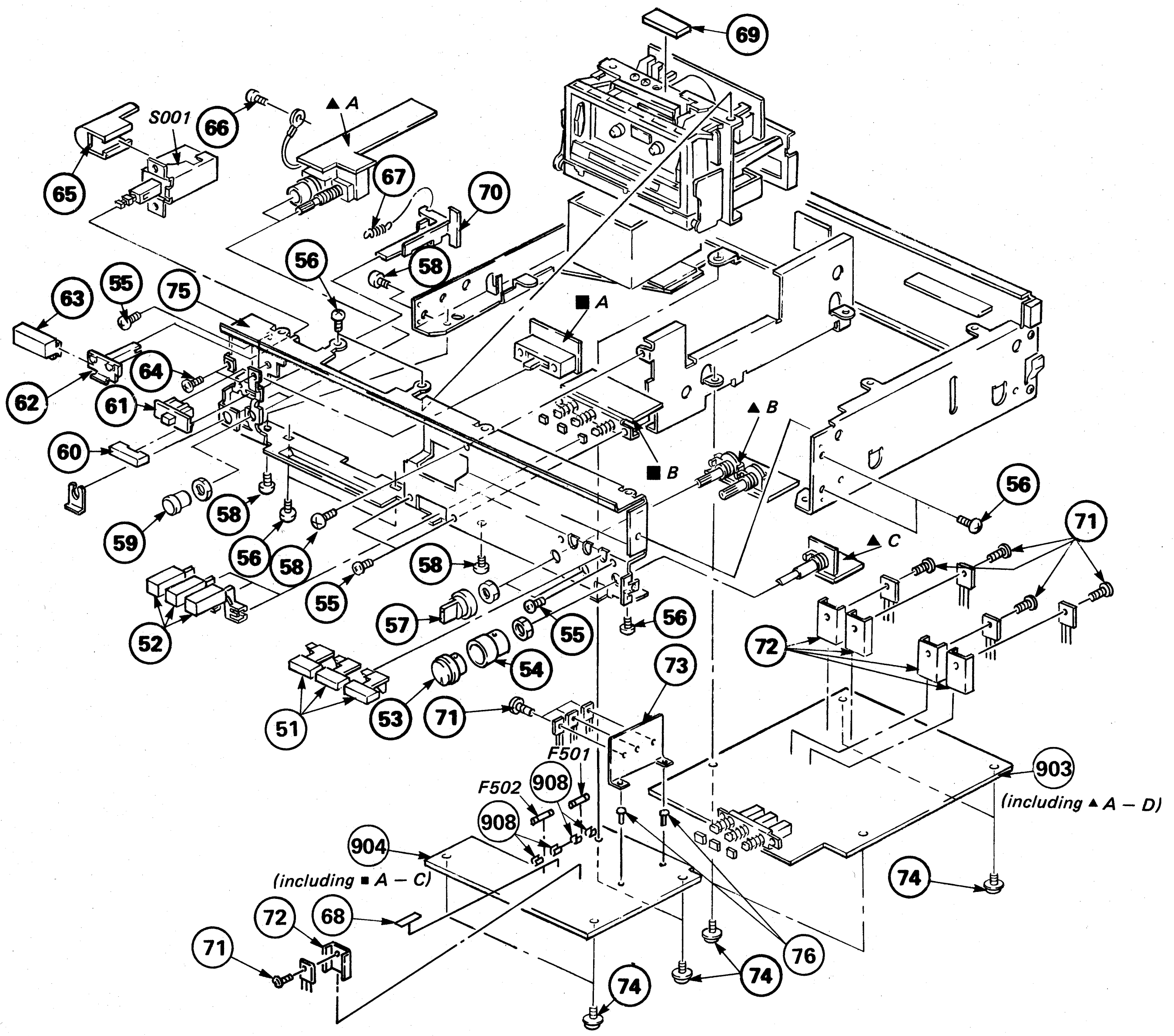


(2)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F501
F502
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903
(including ▲ A – D)
904
(including ■ A – C)
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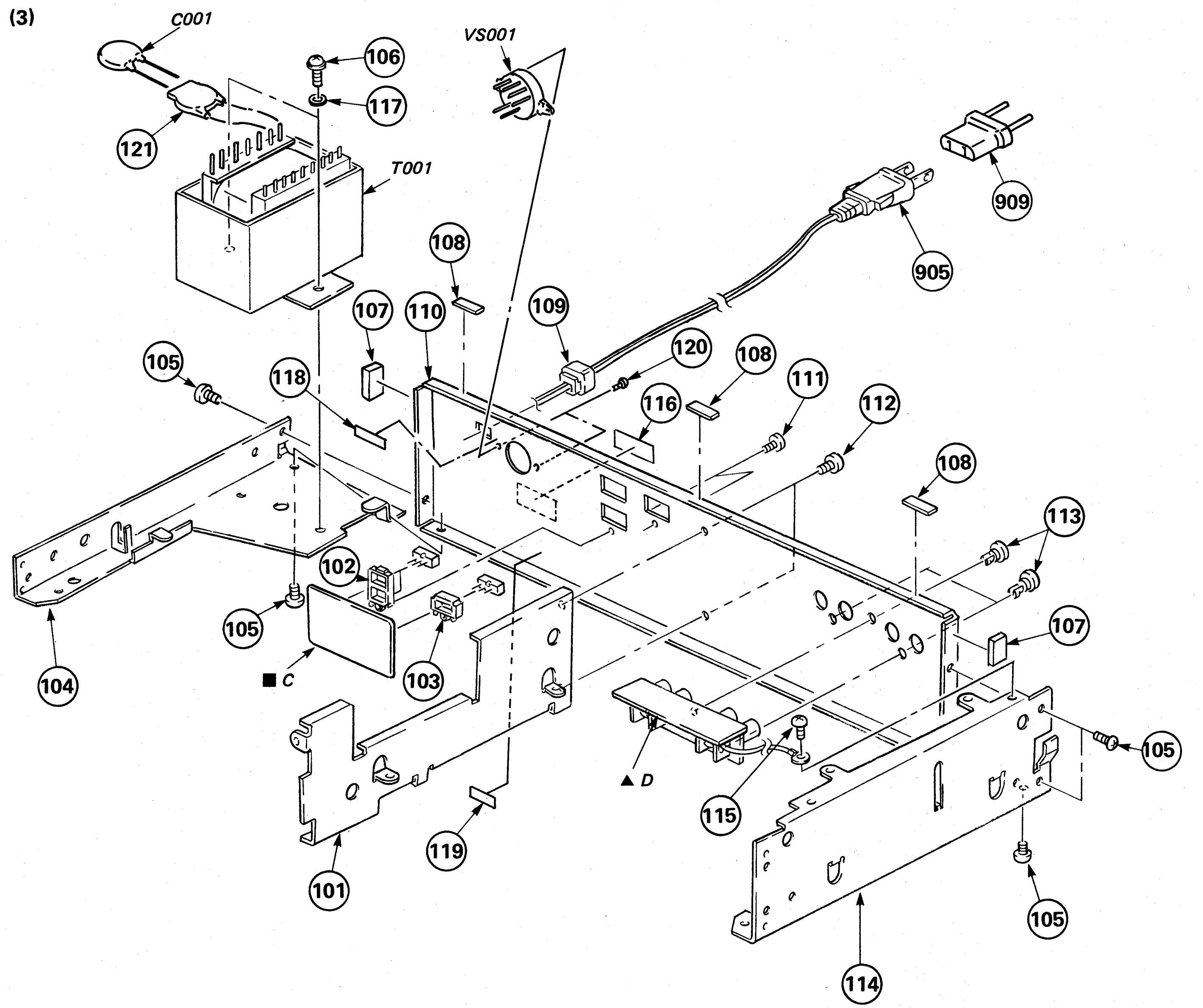
Remarks

No.	Part No.	Description	Remarks
51	3-324-803-01	PUSH BUTTON (A)	
52	3-324-804-01	PUSH BUTTON (B)	
53	X-3577-617-0	KNOB (RIGHT) ASSY, REC	
54	X-3577-618-0	KNOB (LEFT) ASSY, REC	
55	7-682-647-01	SCREW +PS 3X6	
56	7-685-870-09	SCREW +BVTT 3X5 (S)	
57	3-304-929-11	KNOB, HEADPHONE	
58	7-685-752-04	SCREW +BVTT 3X8 (S)	
59	4-902-067-11	KNOB, CONTROL	
60	3-304-419-31	BUTTON, EJECT	
61	3-307-538-21	KNOB, SWITCH, TIMER	
62	*3-324-818-01	JOINT (K), KNOB	
63	3-318-911-81	KNOB (POWER.L), T MOLD	
64	7-621-773-86	SCREW +B 2.6X4	
65	3-575-524-00	COVER, POWER SWITCH	

No.	Part No.	Description	Remarks
66	3-703-108-21	SCREW +BV 3X6, S TIGHT	
67	3-534-558-00	SPRING, TENSION	
68	*3-701-948-16	(AEP,G-AEP,E)...LABEL, FUSE	
69	*3-324-837-01	CUSHION	
70	*3-324-802-01	SLIDER, EJECT	
71	2-259-121-00	SCREW, TR	
72	*3-312-615-11	HEAT SINK	
73	*3-324-805-01	HEAT SINK	
74	7-685-871-01	SCREW +BVTT 3X6 (S)	
75	*X-3324-805-1	CHASSIS ASSY, AMPLIFIER	
76	*3-324-832-01	SHAFT, FIXED, HEAT SINK	
903	*A-2056-263-A	MOUNTED PCB, AUDIO	
904	*A-2056-278-A	MOUNTED PCB, SYSTEM CONTROL	
908	1-533-162-00	HOLDER, FUSE	

(3)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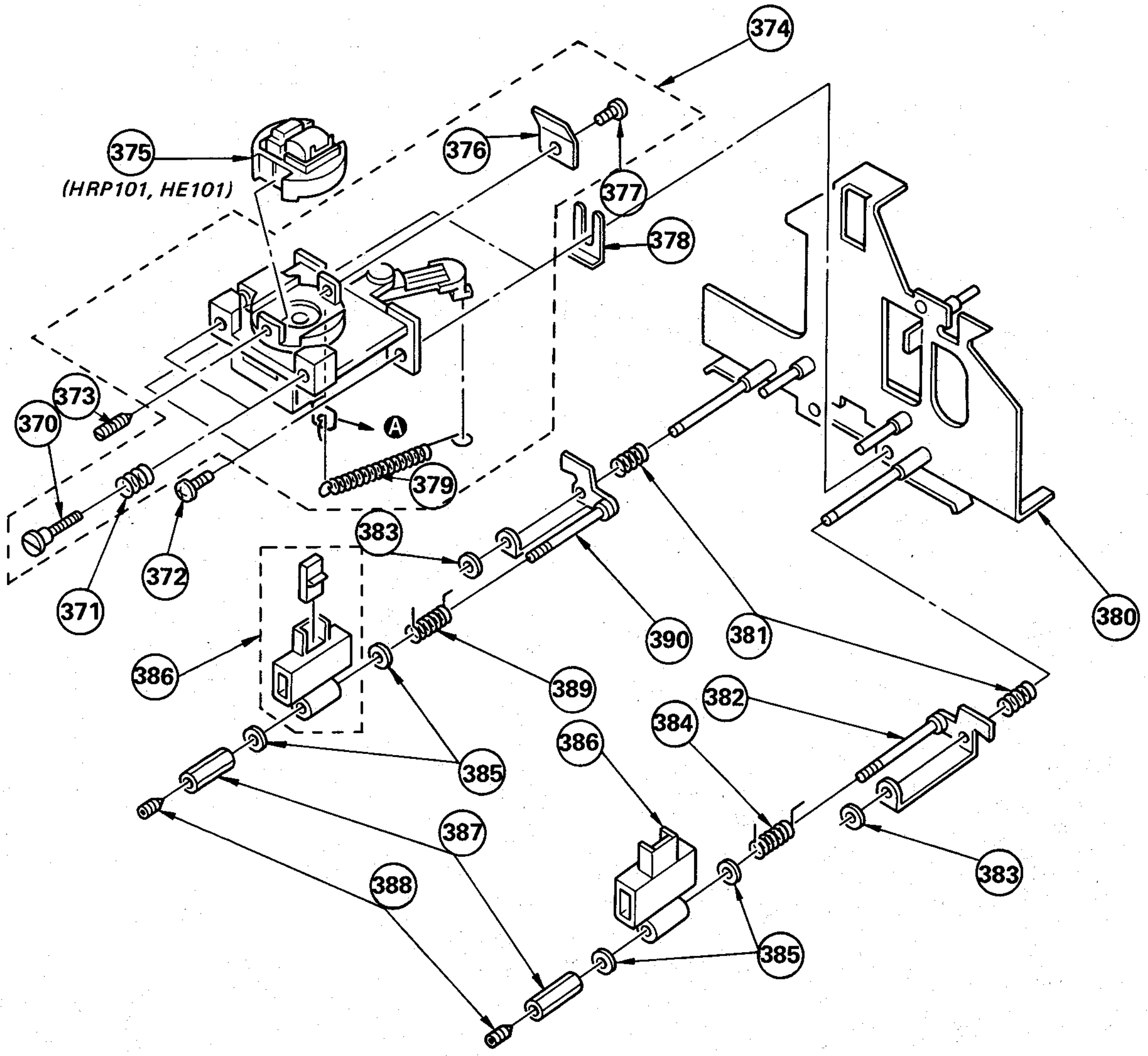
No.	Part No.	Description	Remarks
101	*3-324-822-01	PLATE, RELAY	
102	*3-322-818-01	HOLDER, CONNECTOR	
103	*3-322-819-01	HOLDER, CONNECTOR	
104	*3-304-423-00	PLATE, SIDE, LEFT	
105	7-685-752-04	SCREW +BVTT 3X8 (S)	
106	4-893-523-21	SCREW (M3X6)	
107	9-911-841-XX	CUSHION	
108	9-911-837-XX	CUSHION (B), FILTER	
109	3-703-244-00	(Canadian,AEP,G-AEP,E) ......BUSHING (2104), CORD	
	3-703-571-11	(US).........BUSHING (S)(4516), CORD	
110	*3-324-819-01	(US,Canadian,AEP,G-AEP)...PLATE, JACK	
	*3-324-819-11	(E).......................PLATE, JACK	
111	7-685-132-19	SCREW +P 2.6X5 TYPE2 NON-SLIT	
112	7-685-870-09	SCREW +BVTT 3X5 (S)	
113	3-646-090-11	RIVET, NYLON	

No.	Part No.	Description	Remarks
114	*3-304-944-00	PLATE, SIDE, RIGHT	
115	3-703-108-21	SCREW +BV 3X6, S TIGHT	
116	*3-324-833-01	(G-AEP)....LABEL, MODEL NUMBER (AE4)	
	*3-324-835-01	(AEP)......LABEL, MODEL NUMBER (AE2)	
	*3-324-836-01	(E)........LABEL, MODEL NUMBER (E2/3)	
	*3-324-834-01	(US,Canadian)...LABEL, MODEL NUMBER (U,C)	
117	7-623-210-22	SW 4, TYPE 2	
118	*3-701-030-00	LABEL, SERIAL NUMBER	
119	*3-703-044-26	(US,Canadian)....LABEL, CAUTION	
120	7-682-549-06	SCREW +B 3X6	
121	4-875-455-01	(AEP,G-AEP,E)...COVER (DIA.20), CAPACITOR	
905	⚠.1-555-701-00	(Canadian)....CORD, POWER	
	⚠.1-555-795-00	(AEP,G-AEP)...CORD, POWER	
	⚠.1-556-874-00	(US)..........CORD, POWER	
	⚠.1-556-091-00	(E)...........CORD, POWER	
909	⚠.1-526-565-00	(E3 ONLY)...AC PLUG ADAPTOR	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(4)



No.	Part No.	Description	Remarks
370	3-306-227-01	SCREW, AZIMUTH ADJUCTMENT	
371	3-307-460-00	SPRING, COMPRESSION	
372	7-627-556-58	SCREW +P 2.6X5	
373	7-621-714-36	SET-SCREW, SLOT 1.7X3FLAT POINT	
374	X-3575-367-0	HEAD BLOCK ASSY	
375	A-2108-109-A	FITTING BLOCK ASSY, HEAD	
376	3-306-228-01	SPRING	
377	7-627-552-28	SCREW, PRECISION +P 1.7X2	
378	3-307-477-01	SEAM (A), HEAD ADJUSTMENT	
	3-307-477-11	SEAM (A), HEAD ADJUSTMENT	
	3-307-477-21	SEAM (A), HEAD ADJUSTMENT	
	3-307-477-31	SEAM (A), HEAD ADJUSTMENT	
	3-307-477-41	SEAM (A), HEAD ADJUSTMENT	

No.	Part No.	Description	Remarks
379	3-306-258-01	SPRING, TENSION	
380	X-3575-369-0	CHASSIS (RIGHT) ASSY, HEAD	
381	3-555-122-00	SPRING, COMPRESSION	
382	*X-3575-366-0	LEVER (RIGHT) ASSY, GUIDE	
383	3-307-394-00	RETAINER (B), THRUST	
384	3-306-250-00	SPRING (RIGHT)	
385	7-688-001-01	W 2, SMALL	
386	X-3575-394-1	TAPE GUIDE ASSY	
387	3-306-288-00	NUT, ADJUSTMENT, TAPE GUIDE	
388	7-621-732-08	SET-SCT, HEX. 2X3 FLAT POINT	
389	3-306-249-00	SPRING (LEFT)	
390	*X-3575-365-0	LEVER (LEFT) ASSY, GUIDE	

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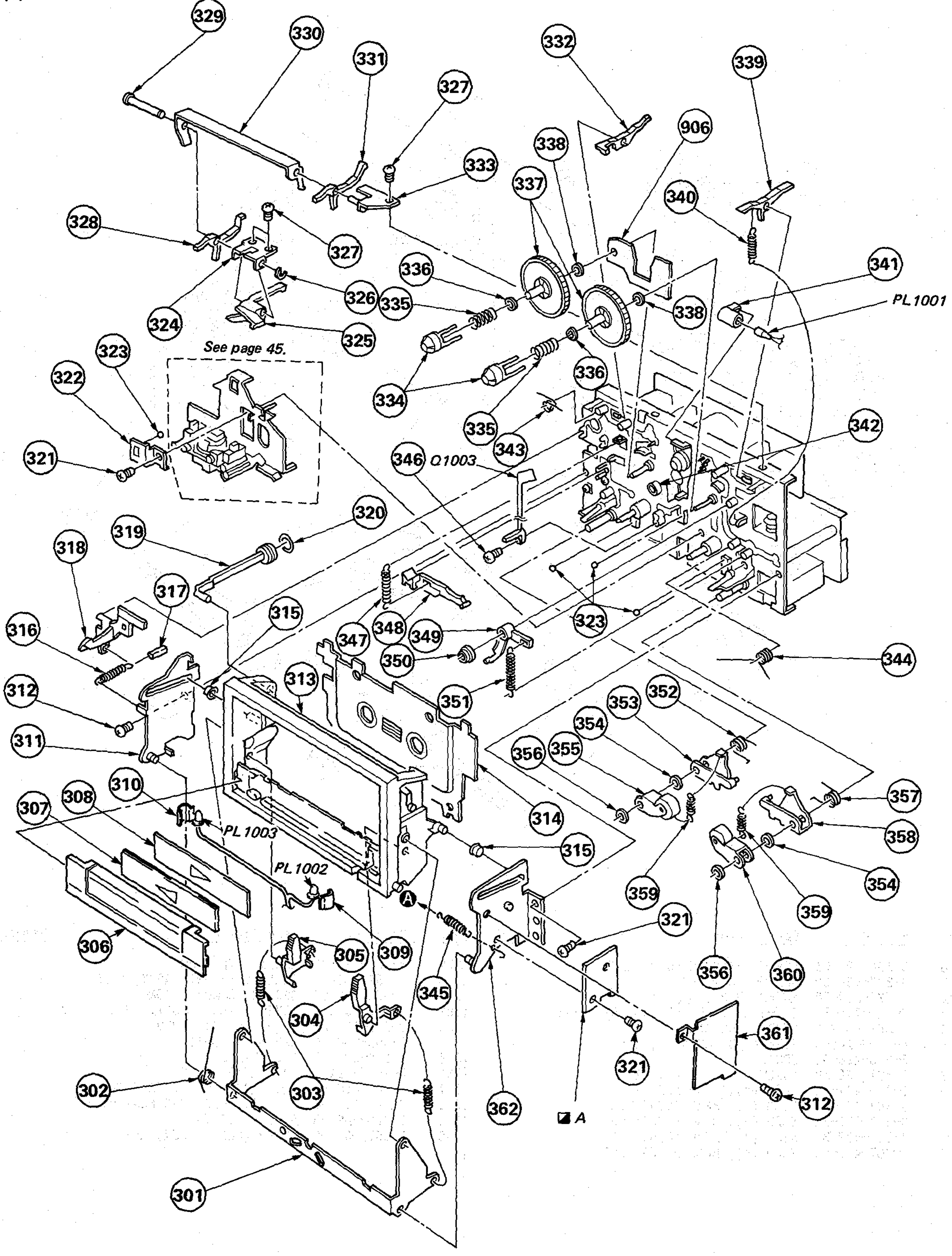
PL1001
See page 45.
Q1003
PL1003
PL1002
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A

No.	Part No.	Description	Remarks
301	*3-306-285-00	LEVER, HOLDER FULCRUM	
302	3-575-356-00	SPRING	
303	3-578-390-00	SPRING, TENSION	
304	3-306-284-00	RETAINER (RIGHT), CASSETTE	
305	3-306-283-00	RETAINER (LEFT), CASSETTE	
306	3-318-425-01	HOLDER, DIRECTION	
307	3-318-423-01	PLATE (REVERSE), DIRECTION	
308	3-318-424-01	PLATE (FORWARD), DIRECTION	
309	*3-318-429-01	REFLECTOR (RIGHT), LAMP	
310	*3-318-428-01	REFLECTOR (LEFT), LAMP	
311	*X-3575-338-0	PLATE (LEFT) ASSY, FULCRUM	
312	7-685-860-09	SCREW +BVTT 2.6X4 (S)	
313	3-318-426-01	HOLDER, CASSETTE	
314	X-3575-393-1	RETAINER ASSY, CASSETTE	
315	3-575-348-00	ROLLER, GUIDE, THREADING	
316	3-632-261-00	SPRING	
317	9-911-815-02	CUSHION	
318	3-575-448-00	LEVER, LOCK	
319	3-575-459-00	PISTON	
320	3-312-441-00	RING, PISTON	
321	7-685-791-04	SCREW +BVTT 2.6X5 (S)	
322	*3-306-225-00	SPRING	
323	7-671-113-02	STEAL, BALL 3	
324	*3-575-440-00	BRACKET, LEVER, DETECTION	
325	3-575-446-00	LEVER, DETECTION, METAL	
326	7-624-104-04	STOP RING 2.0, TYPE -E	
327	7-682-546-04	SCREW +BVTT 3X5 (S)	
328	3-575-438-00	LEVER, DETECTION	
329	*3-306-281-00	SHAFT, DETECTION LEVER	
330	*3-306-279-00	LEVER, ERASING PROTECTION	
331	*3-306-282-00	LEVER, REC DETECTION, REVERSE	
332	3-575-449-00	LEVER, DETECTION, REC	
333	*X-3575-364-0	BRACKET ASSY, LEVER	
334	3-306-257-00	CLAW, REEL TABLE	
335	3-575-365-00	SPRING, COMPRESSION	
336	3-558-708-11	WASHER, STOPPER	
337	3-575-353-11	TABLE, REEL	
338	3-701-439-21	WASHER, 3.0	
339	3-575-331-00	LEVER, DETECTION, HALF	
340	3-575-358-00	SPRING, TENSION	
341	3-575-328-00	HOLDER, LAMP	
342	3-306-296-01	RUBBER, STOPPER	
343	3-318-408-01	SPRING	
344	3-575-351-00	SPRING	
345	3-306-289-01	SPRING, TENSION	
346	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
347	3-575-359-00	SPRING, TENSION	
348	X-3575-310-0	LEVER ASSY, TENSION, BACK	
349	X-3575-370-0	LEVER (R) ASSY, BACK TENSION	
350	3-307-367-00	BUSHING, SELECT LEVER	
351	3-534-027-00	SPRING, TENSION	
352	3-306-239-00	SPRING (LEFT)	
353	*X-3575-362-0	PLATE (LEFT) ASSY, LIMITER	
354	3-701-439-11	WASHER, 3.0	
355	X-3575-361-0	PINCH LEVER (LEFT) ASSY	
356	3-558-708-21	WASHER, STOPPER	
357	3-306-240-00	SPRING (RIGHT)	
358	*X-3575-363-0	PLATE (RIGHT) ASSY, LIMITER	
359	3-306-295-01	SPRING, TENSION	
360	X-3575-360-0	PINCH LEVER (RIGHT) ASSY	
361	*3-318-427-01	PLATE, SHIELD, LEAD, HEAD	
362	*X-3575-339-0	PLATE (RIGHT) ASSY, FULCRUM	
906	*1-603-823-00	PC BOARD, PHOTO	

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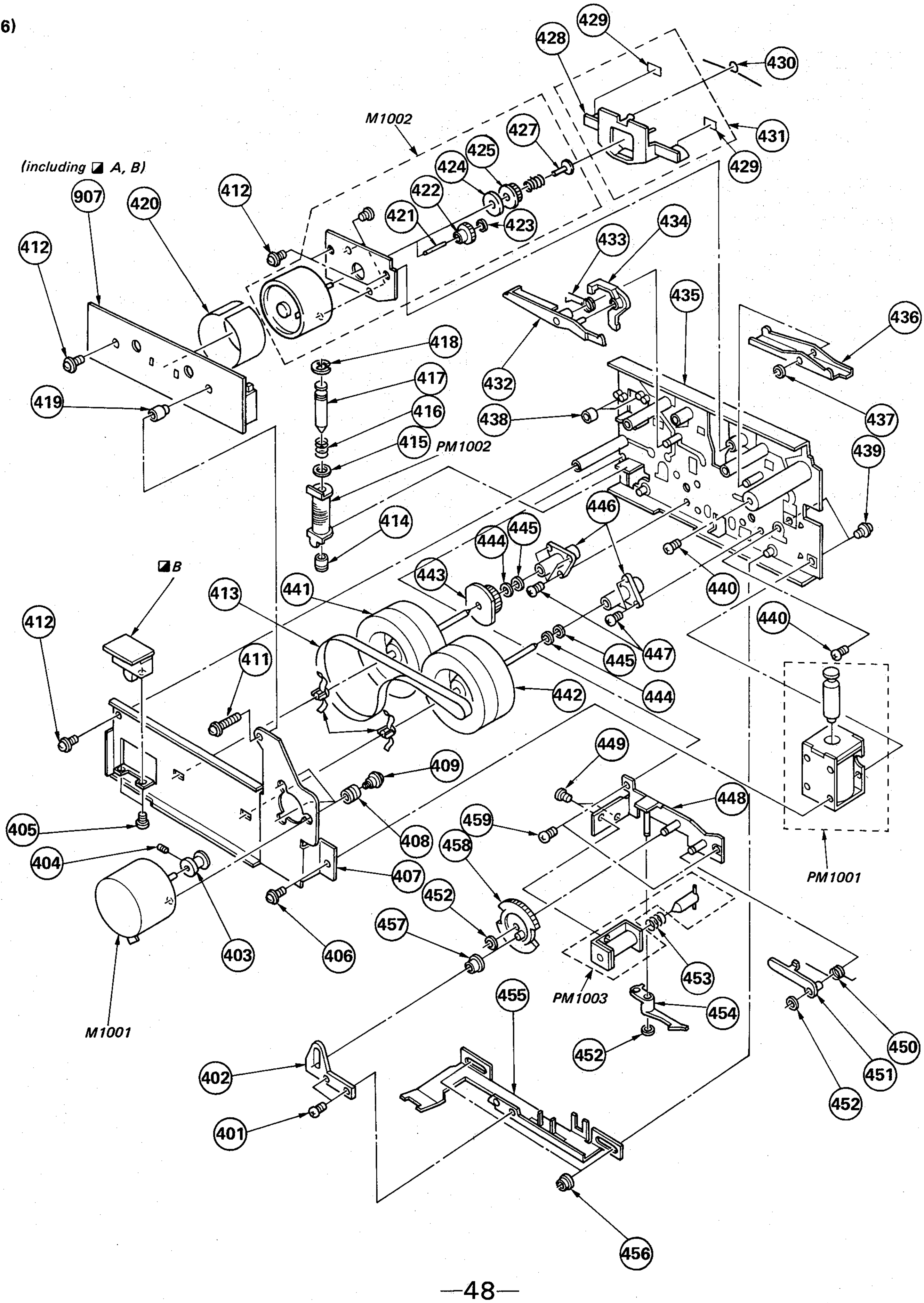
M1002
(including ◪ A, B)
PM1002
◪B
PM1001
PM1003
M1001

No.	Part No.	Description	Remarks
401	7-621-772-05	SCREW +B 2X3	
402	3-306-251-00	PLATE (A), SLIDE	
403	3-306-262-00	PULLEY (R), MOTOR	
404	7-621-732-08	SET-SCT, HEX. 2X3 FLAT POINT	
405	7-621-775-00	SCREW +B 2.6X3	
406	7-682-947-01	SCREW +PSW 3X6	
407	*3-306-270-00	RETAINER (RIGHT), THRUST	
408	3-570-118-00	CUSHION, MOTOR	
409	3-570-027-00	SCREW, MOTOR	
410	3-575-321-00	RETAINER, THRUST, CAPSTAN	
411	7-687-250-21	SCREW, TOTSU PTPWH 3X16, TYPE2	
412	7-687-246-21	SCREW, TOTSU PTPWH 3X8, TYPE2	
413	3-561-850-11	BELT, CAPSTAN	
414	3-575-416-11	ARBOR, FIXED	
415	3-701-444-11	WASHER, 6	
416	3-575-414-00	SPRING, COMPRESSION	
417	3-575-415-11	ARBOR, MOVABLE	
418	7-624-109-04	STOP RING 5.0, TYPE -E	
419	3-306-259-00	SPACER, PC BOARD	
420	3-306-261-00	PLATE, SHIELD, MOTOR	
421	3-575-304-00	SHAFT, GEAR, FR	
422	3-575-332-00	GEAR, FR	
423	3-558-708-01	WASHER, STOPPER	
424	3-564-027-11	FELT, LIMITER	
425	3-575-324-00	GEAR, LIMITER	
427	3-575-327-00	STOPPER	
428	3-575-491-00	PLATE, BRAKE	
429	3-575-469-00	SHOE, BRAKE	
430	3-575-345-00	SPRING	
431	*X-3575-342-0	PLATE ASSY, BRAKE	
432	3-575-460-00	LEVER, SELECT TUNE	
433	3-575-458-00	SPRING	
434	3-575-318-00	LEVER, LOCK, TUNING	
435	*X-3575-368-0	CHASSIS ASSY, MECHANICAL	
436	*3-306-260-00	LEVER, FWD	
437	3-558-708-21	WASHER, STOPPER	
438	3-538-051-00	RUBBER, BRAKE	
439	7-682-949-01	SCREW +PSW 3X10	
440	7-685-104-19	SCREW +P 2X6 TYPE2 NON-SLIT	
441	X-3575-396-1	FLYWHEEL (RIGHT) ASSY	
442	X-3575-395-1	FLYWHEEL (LEFT) ASSY	
443	3-306-224-00	GEAR, PINION	
444	3-701-438-11	WASHER, 2.5	
445	3-307-482-00	WASHER, LUMILER	
446	X-3575-303-0	METAL ASSY, CAPSTAN	
447	7-685-791-04	SCREW +BVTT 2.6X5 (S)	
448	*X-3575-358-0	BRACKET ASSY, SOLENOID	
449	7-621-775-10	SCREW +B 2.6X4	
450	3-306-237-00	SPRING	
451	3-306-223-00	LEVER (B), TRIGGER	
452	3-307-394-00	RETAINER (B), THRUST	
453	3-571-850-11	SPRING, COMPRESSION	
454	3-306-253-00	LEVER (A), TRIGGER	
455	*3-306-271-00	SLIDER (A), SELECTION	
456	3-307-367-00	BUSHING, SELECT LEVER	
457	3-564-933-00	BOSS, FITTING, SPRING	
458	3-306-287-00	GEAR, TRIGGER	
459	7-685-860-09	SCREW +BVTT 2.6X4 (S)	
907	*1-615-091-11	PC BOARD, MD SWITCH	

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC,
UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	*1-615-088-11	PC BOARD, INDICATOR			
902	*1-615-089-11	PC BOARD, CONTROL SW			
903	*A-2056-263-A	MOUNTED PCB, AUDIO			
904	*A-2056-278-A	MOUNTED PCB, SYSTEM CONTROL			
905	⚠.1-555-701-00	(Canadian)....CORD, POWER			
	⚠.1-555-795-00	(AEP,G-AEP)...CORD, POWER			
	⚠.1-556-874-00	(US)..........CORD, POWER			
	⚠.1-556-091-00	(E)...........CORD, POWER			
906	*1-603-823-00	PC BOARD, PHOTO			
907	*1-615-091-11	PC BOARD, MD SWITCH			
908	1-533-162-00	HOLDER, FUSE			
909	⚠.1-526-565-00	(E3 ONLY)....AC PLUG ADAPTOR			
C001	⚠.1-161-744-00	CAP, CERAMIC	10000PF FZ		400V
C101	1-124-185-00	ELECT	4.7MF	20%	50V
C102	1-161-375-00	CERAMIC	0.0022MF	20%	50V
C104	1-124-185-00	ELECT	4.7MF	20%	50V
C105	1-124-185-00	ELECT	4.7MF	20%	50V
C106	1-110-203-00	MYLAR	0.0047MF	5%	50V
C107	1-136-173-00	FILM	0.47MF	5%	50V
C108	1-136-167-00	FILM	0.15MF	5%	50V
C109	1-136-155-00	FILM	0.015MF	5%	50V
C110	1-136-169-00	FILM	0.22MF	5%	50V
C111	1-136-163-00	FILM	0.068MF	5%	50V
C112	1-136-161-00	FILM	0.047MF	5%	50V
C113	1-110-205-00	MYLAR	0.0068MF	5%	50V
C114	1-136-153-00	FILM	0.01MF	5%	50V
C115	1-124-185-00	ELECT	4.7MF	20%	50V
C116	1-124-185-00	ELECT	4.7MF	20%	50V
C118	1-136-165-00	FILM	0.1MF	5%	50V
C119	1-124-186-00	ELECT	10MF	20%	50V
C120	1-107-036-00	MICA	68PF	5%	500V
C121	1-110-206-00	MYLAR	0.0082MF	5%	50V
C122	1-136-154-00	FILM	0.012MF	5%	50V
C123	1-136-155-00	FILM	0.015MF	5%	50V
C125	1-110-205-00	MYLAR	0.0068MF	5%	50V
C127	1-161-322-00	CERAMIC	820PF	10%	50V
C128	1-107-173-00	MICA	150PF	5%	500V
C150	1-104-228-00	POLYSTYRENE	0.0015MF	5%	125V
C151	1-130-305-00	FILM	0.022MF	5%	100V
C152	1-124-186-00	ELECT	10MF	20%	50V
C153	1-130-307-00	FILM	0.027MF	5%	100V
C160	1-124-185-00	ELECT	4.7MF	20%	50V
C161	1-131-369-00	TANTALUM	4.7MF	20%	16V
C180	1-136-165-00	FILM	0.1MF	5%	50V
C301	1-123-381-00	ELECT	2.2MF	20%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C302	1-123-332-00	ELECT	47MF	20%	25V
C303	1-123-332-00	ELECT	47MF	20%	25V
C304	1-123-332-00	ELECT	47MF	20%	25V
C305	1-123-332-00	ELECT	47MF	20%	25V
C306	1-123-332-00	ELECT	47MF	20%	25V
C307	1-123-332-00	ELECT	47MF	20%	25V
C310	1-123-332-00	ELECT	47MF	20%	25V
C311	1-123-332-00	ELECT	47MF	20%	25V
C312	1-136-157-00	FILM	0.022MF	5%	50V
C313	1-136-157-00	FILM	0.022MF	5%	50V
C321	1-123-379-00	ELECT	0.47MF	20%	50V
C322	1-123-381-00	ELECT	2.2MF	20%	50V
C323	1-130-023-00	FILM	0.0027MF	5%	100V
C324	1-130-023-00	FILM	0.0027MF	5%	100V
C325	1-130-285-00	FILM	0.0033MF	5%	100V
C326	1-129-714-00	FILM	0.01MF	10%	630V
C330	1-123-356-00	ELECT	10MF	20%	16V
C350	1-123-334-00	ELECT	220MF	20%	25V
C351	1-123-334-00	ELECT	220MF	20%	25V
C360	1-123-332-00	ELECT	47MF	20%	25V
C361	1-123-332-00	ELECT	47MF	20%	25V
C362	1-123-332-00	ELECT	47MF	20%	25V
C363	1-123-332-00	ELECT	47MF	20%	25V
C380	1-123-333-00	ELECT	100MF	20%	16V
C381	1-123-333-00	ELECT	100MF	20%	16V
C382	1-161-494-00	CERAMIC	0.022MF	30%	25V
C385	1-162-215-31	CERAMIC	47PF	5%	50V
C390	1-161-494-00	CERAMIC	0.022MF	30%	25V
C398	1-123-381-00	ELECT	2.2MF	20%	50V
C399	1-123-381-00	ELECT	2.2MF	20%	50V
C401	1-123-338-00	ELECT	2200MF	20%	25V
C402	1-123-338-00	ELECT	2200MF	20%	25V
C403	1-123-333-00	ELECT	100MF	20%	16V
C404	1-123-333-00	ELECT	100MF	20%	16V
C405	1-124-077-51	ELECT	1000MF	20%	16V
C406	1-124-077-51	ELECT	1000MF	20%	16V
C407	1-123-333-00	ELECT	100MF	20%	16V
C408	1-123-333-00	ELECT	100MF	20%	16V
C409	1-124-077-51	ELECT	1000MF	20%	16V
C410	1-124-077-51	ELECT	1000MF	20%	16V
C501	1-123-338-00	ELECT	2200MF	20%	25V
C502	1-123-338-00	ELECT	2200MF	20%	25V
C503	1-123-364-00	ELECT	1000MF	20%	50V
C504	1-123-326-00	ELECT	3300MF	20%	16V
C505	1-123-360-00	ELECT	100MF	20%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C506	1-123-360-00	ELECT	100MF	20%	50V
C507	1-123-360-00	ELECT	100MF	20%	50V
C508	1-123-369-00	ELECT	4.7MF	20%	50V
C509	1-123-298-00	ELECT	470MF	20%	6.3V
C511	1-123-310-00	ELECT	470MF	20%	10V
C512	1-123-309-00	ELECT	330MF	20%	10V
C513	1-123-369-00	ELECT	4.7MF	20%	50V
C514	1-123-323-00	ELECT	470MF	20%	16V
C515	1-123-369-00	ELECT	4.7MF	20%	50V
C516	1-123-360-00	ELECT	100MF	20%	50V
C521	1-162-019-00	CERAMIC	18PF	5%	50V
C522	1-162-019-00	CERAMIC	18PF	5%	50V
C523	1-136-161-00	FILM	0.047MF	5%	50V
C524	1-136-165-00	FILM	0.1MF	5%	50V
C525	1-123-380-00	ELECT	1MF	20%	50V
C526	1-136-167-00	FILM	0.15MF	5%	50V
C531	1-123-307-00	ELECT	100MF	20%	6.3V
C532	1-162-100-00	CERAMIC	150PF	10%	50V
C533	1-162-100-00	CERAMIC	150PF	10%	50V
C534	1-162-110-00	CERAMIC	0.001MF	10%	50V
C561	1-123-369-00	ELECT	4.7MF	20%	50V
C582	1-123-380-00	ELECT	1MF	20%	50V
C583	1-162-056-00	CERAMIC	33PF	5%	50V
C584	1-162-056-00	CERAMIC	33PF	5%	50V
C585	1-123-307-00	ELECT	100MF	20%	6.3V
C586	1-123-382-00	ELECT	3.3MF	20%	50V
C591	1-161-494-00	CERAMIC	0.022MF	30%	25V
C592	1-123-380-00	ELECT	1MF	20%	50V
C621	1-123-332-00	ELECT	47MF	20%	16V
C622	1-123-318-00	ELECT	33MF	20%	16V
C760	1-123-661-00	ELECT	100MF	20%	6.3V
C1001	1-161-327-00	CERAMIC	0.0033MF	30%	50V
C1002	1-161-327-00	CERAMIC	0.0033MF	30%	50V
C1003	1-123-332-00	ELECT	47MF	20%	16V
C1004	1-123-332-00	ELECT	47MF	20%	16V
C1005	1-123-307-00	ELECT	100MF	20%	10V
CNJ380	1-507-659-00	JACK			
CNP301	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP302	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP303	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP304	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP320	*1-560-708-00	PIN, CONNECTOR 2P			
CNP350	*1-560-605-00	PIN, CONNECTOR 6P			
CNP501	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP502	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP503	*1-564-507-11	PLUG, CONNECTOR 4P			
CNP504	*1-564-507-31	PLUG, CONNECTOR 4P			
CNP505	*1-564-510-11	PLUG, CONNECTOR 7P			
CNP506	*1-564-507-21	PLUG, CONNECTOR 4P			
CNP507	*1-564-508-11	PLUG, CONNECTOR 5P			
CNP508	*1-564-509-11	PLUG, CONNECTOR 6P			
CNP509	*1-564-511-11	PLUG, CONNECTOR 8P			
CNP510	*1-564-509-11	PLUG, CONNECTOR 6P			
CNP511	*1-564-506-11	PLUG, CONNECTOR 3P			
CNP512	*1-564-506-11	PLUG, CONNECTOR 3P			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
CNP513	*1-564-506-11	PLUG, CONNECTOR 3P
CNP514	*1-564-505-21	PLUG, CONNECTOR 2P
CNP515	*1-564-505-11	PLUG, CONNECTOR 2P
CNP516	*1-564-508-11	PLUG, CONNECTOR 5P
CNP517	*1-564-510-21	PLUG, CONNECTOR 7P
CNP518	*1-564-507-41	PLUG, CONNECTOR 4P
CT301	1-141-225-00	CAP, TUNING, TRIMMER
D160	8-719-107-94	DIODE 1SS202-1
D301	8-719-107-94	DIODE 1SS202-1
D302	8-719-107-94	DIODE 1SS202-1
D320	8-719-910-96	DIODE HZ9B3L
D330	8-719-107-94	DIODE 1SS202-1
D340	8-719-107-94	DIODE 1SS202-1
D341	8-719-107-94	DIODE 1SS202-1
D342	8-719-107-94	DIODE 1SS202-1
D343	8-719-107-94	DIODE 1SS202-1
D344	8-719-107-94	DIODE 1SS202-1
D345	8-719-107-94	DIODE 1SS202-1
D350	8-719-107-94	DIODE 1SS202-1
D351	8-719-107-94	DIODE 1SS202-1
D360	8-719-107-94	DIODE 1SS202-1
D401	8-719-910-61	DIODE HZ6A1L
D402	8-719-910-61	DIODE HZ6A1L
D403	8-719-910-17	DIODE HZ11C1L
D404	8-719-910-17	DIODE HZ11C1L
D501	8-719-210-12	DIODE 10DF2
D502	8-719-210-12	DIODE 10DF2
D503	8-719-210-12	DIODE 10DF2
D504	8-719-210-12	DIODE 10DF2
D505	8-719-200-02	DIODE 10E-2
D506	8-719-200-02	DIODE 10E-2
D507	8-719-200-02	DIODE 10E-2
D508	8-719-200-02	DIODE 10E-2
D509	8-719-200-02	DIODE 10E-2
D510	8-719-200-02	DIODE 10E-2
D511	8-719-200-02	DIODE 10E-2
D512	8-719-200-02	DIODE 10E-2
D513	8-719-200-02	DIODE 10E-2
D514	8-719-200-02	DIODE 10E-2
D515	8-719-200-02	DIODE 10E-2
D516	8-719-200-02	DIODE 10E-2
D517	8-719-913-02	DIODE HZ30-2L
D518	8-719-910-71	DIODE HZ7A1L
D519	8-719-910-79	DIODE HZ7C3L
D520	8-719-910-24	DIODE HZ12B1L
D521	8-719-107-94	DIODE 1SS202-1
D522	8-719-107-94	DIODE 1SS202-1
D531	8-719-107-94	DIODE 1SS202-1
D532	8-719-107-94	DIODE 1SS202-1
D533	8-719-107-94	DIODE 1SS202-1
D541	8-719-107-94	DIODE 1SS202-1
D561	8-719-107-94	DIODE 1SS202-1
D582	8-719-107-94	DIODE 1SS202-1
D584	8-719-200-02	DIODE 10E-2
D585	8-719-107-94	DIODE 1SS202-1
D586	8-719-200-02	DIODE 10E-2
D611	8-719-903-49	DIODE SLH-54PC3
D612	8-719-903-49	DIODE SLH-54PC3

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D613	8-719-904-08	DIODE SLH-54VC3
D614	8-719-904-07	DIODE SLH-54DC3
D621	8-719-107-94	DIODE 1SS202-1
D731	8-719-107-94	DIODE 1SS202-1
D732	8-719-107-94	DIODE 1SS202-1
D760	8-719-107-94	DIODE 1SS202-1
D761	8-719-902-77	DIODE SLR-34PC5
D762	8-719-902-77	DIODE SLR-34PC5
D763	8-719-902-77	DIODE SLR-34PC5
D764	8-719-107-94	DIODE 1SS202-1
D765	8-719-107-94	DIODE 1SS202-1
D766	8-719-902-77	DIODE SLR-34PC5
D767	8-719-902-77	DIODE SLR-34PC5
D768	8-719-107-94	DIODE 1SS202-1
D769	8-719-107-94	DIODE 1SS202-1
D770	8-719-107-94	DIODE 1SS202-1
D771	8-719-910-96	DIODE HZ9B3L
D772	8-719-107-94	DIODE 1SS202-1
D773	8-719-107-94	DIODE 1SS202-1
D774	8-719-107-94	DIODE 1SS202-1
D1001	8-719-200-02	DIODE 10E-2
D1002	8-719-200-02	DIODE 10E-2
D1003	8-719-107-94	DIODE 1SS202-1
D1004	8-719-107-94	DIODE 1SS202-1
D1005	8-719-107-94	DIODE 1SS202-1
F501	⚠.1-532-259-00	(AEP,G-AEP,E)...FUSE, TIME-LAG 1.6A
F501	⚠.1-532-555-00	(US,Canadian)...FUSE, GLASS TUBE 1.6A
F502	⚠.1-532-259-00	(AEP,G-AEP,E)...FUSE, TIME-LAG 1.6A
F502	⚠.1-532-555-00	(US,Canadian)...FUSE, GLASS TUBE 1.6A
FL101	1-519-340-11	INDICATOR TUBE, FLUORESCENT
IC301	8-752-018-70	IC CX20187
IC302	8-759-745-60	IC NJM4560D
IC303	8-759-745-60	IC NJM4560D
IC310	8-759-145-57	IC UPC4557C
IC350	8-759-700-04	IC NJM2043D-D
IC360	8-759-140-66	IC UPD4066BC
IC361	8-759-145-58	IC UPC4558C
IC362	8-759-145-57	IC UPC4557C
IC380	8-759-145-57	IC UPC4557C
IC501	8-755-641-60	IC CX564-160
IC502	8-759-700-46	IC CX10034
IC503	8-759-602-47	IC M50761-417P
IC504	8-759-240-19	IC TC4019BP
IC505	8-759-240-69	IC TC4069UBP
IC506	8-759-240-69	IC TC4069UBP
IC507	8-759-240-69	IC TC4069UBP
IC701	8-759-302-98	IC HD614042SA87
IC703	8-759-240-69	IC TC4069UBP
IC704	8-759-700-48	IC NJM2903S
J301	1-507-531-31	PLATE, PIN-JACK
J501	*1-560-039-00	PIN, CONNECTOR
J502	*1-560-039-00	PIN, CONNECTOR
J503	*1-560-280-00	CONNECTOR PIN 3P
L101	1-408-930-00	MICRO INDUCTOR 33MMH
L102	1-408-257-00	MICRO INDUCTOR 10MMH
L103	1-408-254-00	MICRO INDUCTOR 5.6MMH
L104	1-408-257-00	MICRO INDUCTOR 10MMH
L301	1-407-173-XX	MICRO INDUCTOR 220UH
L501	1-408-117-00	MICRO INDUCTOR 10UH
LPF101	1-231-388-00	FILTER, LOWPASS
LV101	1-235-323-11	ENCAPSULATED PARTS (SPK UNIT)
M1001	1-541-239-00	MOTOR, CAPSTAN
M1002	X-3575-397-1	MOTOR ASSY, REEL
PM1001	1-454-333-00	SOLENOID, PLUNGER
PM1002	1-454-291-00	SOLENOID, PLUNGER
PM1003	1-454-363-00	SOLENOID, PLUNGER
PL310	1-518-386-00	LAMP, PILOT
PL1001	1-518-563-11	LAMP, PILOT
PL1002	1-518-561-21	LAMP, PILOT
PL1003	1-518-562-21	LAMP, PILOT
PS501	1-532-605-00	LINK, IC
Q101	8-729-245-83	TRANSISTOR 2SC2458
Q102	8-729-107-77	TRANSISTOR 2SC3623-L
Q103	8-729-107-77	TRANSISTOR 2SC3623-L
Q104	8-729-107-77	TRANSISTOR 2SC3623-L
Q105	8-729-107-77	TRANSISTOR 2SC3623-L
Q106	8-729-107-77	TRANSISTOR 2SC3623-L
Q107	8-729-107-77	TRANSISTOR 2SC3623-L
Q150	8-729-107-77	TRANSISTOR 2SC3623-L
Q160	8-729-245-83	TRANSISTOR 2SC2458
Q161	8-729-900-89	TRANSISTOR DTC144ES
Q301	8-729-900-89	TRANSISTOR DTC144ES
Q302	8-729-900-89	TRANSISTOR DTC144ES
Q305	8-729-900-80	TRANSISTOR DTC114ES
Q310	8-729-245-83	TRANSISTOR 2SC2458
Q311	8-729-245-83	TRANSISTOR 2SC2458
Q320	8-729-900-89	TRANSISTOR DTC144ES
Q321	8-729-900-65	TRANSISTOR DTA144ES
Q322	8-729-900-89	TRANSISTOR DTC144ES
Q323	8-729-900-65	TRANSISTOR DTA144ES
Q324	8-729-245-83	TRANSISTOR 2SC2458
Q325	8-729-900-65	TRANSISTOR DTA144ES
Q326	8-729-194-57	TRANSISTOR 2SC945-P
Q327	8-729-245-83	TRANSISTOR 2SC2458
Q328	8-729-245-83	TRANSISTOR 2SC2458
Q330	8-729-245-83	TRANSISTOR 2SC2458
Q340	8-729-900-65	TRANSISTOR DTA144ES
Q341	8-729-900-65	TRANSISTOR DTA144ES
Q401	8-729-203-02	TRANSISTOR 2SK30A-O
Q402	8-729-180-92	TRANSISTOR 2SD809-K
Q403	8-729-315-22	TRANSISTOR 2SD1152
Q404	8-729-315-22	TRANSISTOR 2SD1152
Q405	8-729-203-02	TRANSISTOR 2SK30A-O
Q406	8-729-173-13	TRANSISTOR 2SB731
Q407	8-729-384-48	TRANSISTOR 2SA844
Q408	8-729-384-48	TRANSISTOR 2SA844
Q409	8-729-180-92	TRANSISTOR 2SD809-K
Q410	8-729-315-22	TRANSISTOR 2SD1152
Q411	8-729-173-13	TRANSISTOR 2SB731
Q412	8-729-384-48	TRANSISTOR 2SA844

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q501	8-729-400-81	TRANSISTOR 2SD1266-Q
Q502	8-729-400-81	TRANSISTOR 2SD1266-Q
Q503	8-729-400-81	TRANSISTOR 2SD1266-Q
Q504	8-729-180-92	TRANSISTOR 2SD809-K
Q505	8-729-173-13	TRANSISTOR 2SB731
Q506	8-729-245-83	TRANSISTOR 2SC2458
Q508	8-729-900-36	TRANSISTOR DTC124ES
Q521	8-729-900-36	TRANSISTOR DTC124ES
Q531	8-729-900-61	TRANSISTOR DTA114ES
Q532	8-729-900-63	TRANSISTOR DTA124ES
Q533	8-729-900-63	TRANSISTOR DTA124ES
Q541	8-729-245-83	TRANSISTOR 2SC2458
Q551	8-729-195-23	TRANSISTOR 2SA952
Q552	8-729-195-23	TRANSISTOR 2SA952
Q553	8-729-100-13	TRANSISTOR 2SC2001
Q554	8-729-100-13	TRANSISTOR 2SC2001
Q555	8-729-900-63	TRANSISTOR DTA124ES
Q556	8-729-900-63	TRANSISTOR DTA124ES
Q561	8-729-103-43	TRANSISTOR 2SB734
Q562	8-729-103-43	TRANSISTOR 2SB734
Q563	8-729-177-44	TRANSISTOR 2SD774
Q564	8-729-177-44	TRANSISTOR 2SD774
Q565	8-729-177-44	TRANSISTOR 2SD774
Q566	8-729-900-36	TRANSISTOR DTC124ES
Q567	8-729-900-36	TRANSISTOR DTC124ES
Q568	8-729-900-63	TRANSISTOR DTA124ES
Q569	8-729-900-63	TRANSISTOR DTA124ES
Q570	8-729-900-63	TRANSISTOR DTA124ES
Q571	8-729-900-63	TRANSISTOR DTA124ES
Q581	8-729-900-63	TRANSISTOR DTA124ES
Q582	8-729-900-63	TRANSISTOR DTA124ES
Q583	8-729-900-36	TRANSISTOR DTC124ES
Q584	8-729-900-36	TRANSISTOR DTC124ES
Q585	8-729-900-63	TRANSISTOR DTA124ES
Q586	8-729-900-36	TRANSISTOR DTC124ES
Q621	8-729-178-54	TRANSISTOR 2SC2785
Q622	8-729-178-54	TRANSISTOR 2SC2785
Q701	8-729-900-63	TRANSISTOR DTA124ES
Q702	8-729-900-63	TRANSISTOR DTA124ES
Q703	8-729-900-63	TRANSISTOR DTA124ES
Q704	8-729-900-63	TRANSISTOR DTA124ES
Q705	8-729-900-63	TRANSISTOR DTA124ES
Q706	8-729-900-63	TRANSISTOR DTA124ES
Q707	8-729-900-63	TRANSISTOR DTA124ES
Q708	8-729-900-63	TRANSISTOR DTA124ES
Q709	8-729-900-63	TRANSISTOR DTA124ES
Q710	8-729-900-63	TRANSISTOR DTA124ES
Q711	8-729-900-63	TRANSISTOR DTA124ES
Q712	8-729-900-63	TRANSISTOR DTA124ES
Q713	8-729-900-63	TRANSISTOR DTA124ES
Q714	8-729-900-63	TRANSISTOR DTA124ES
Q730	8-729-900-36	TRANSISTOR DTC124ES
Q760	8-729-900-36	TRANSISTOR DTC124ES
Q1001	8-729-110-21	TRANSISTOR PH102

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q1002	8-729-110-21	TRANSISTOR PH102			
Q1003	1-806-713-11	PHOTO SENSOR			
Q1004	8-729-900-63	TRANSISTOR DTA124ES			
R100	1-214-765-00	METAL	33K	1%	1/4W
R101	1-214-750-00	METAL	7.5K	1%	1/4W
R102	1-214-729-00	METAL	1K	1%	1/4W
R105	1-214-777-00	METAL	100K	1%	1/4W
R106	1-214-749-00	METAL	6.8K	1%	1/4W
R107	1-214-741-00	METAL	3.3K	1%	1/4W
R110	1-214-738-00	METAL	2.4K	1%	1/4W
R111	1-214-744-00	METAL	4.3K	1%	1/4W
R112	1-247-123-00	CARBON	470	5%	1/4W
R113	1-214-737-00	METAL	2.2K	1%	1/4W
R114	1-214-737-00	METAL	2.2K	1%	1/4W
R115	1-247-151-00	CARBON	6.8K	5%	1/4W
R116	1-247-127-00	CARBON	680	5%	1/4W
R117	1-214-729-00	METAL	1K	1%	1/4W
R118	1-214-753-00	METAL	10K	1%	1/4W
R119	1-214-760-00	METAL	20K	1%	1/4W
R120	1-247-148-00	CARBON	5.1K	5%	1/4W
R121	1-247-162-00	CARBON	20K	5%	1/4W
R122	1-247-138-00	CARBON	2K	5%	1/4W
R123	1-247-155-00	CARBON	10K	5%	1/4W
R124	1-246-529-00	CARBON	220K	5%	1/4W
R125	1-247-717-11	CARBON	2.2K	5%	1/4W
R127	1-247-177-00	CARBON	82K	5%	1/4W
R128	1-247-164-00	CARBON	24K	5%	1/4W
R129	1-214-749-00	METAL	6.8K	1%	1/4W
R130	1-247-150-00	CARBON	6.2K	5%	1/4W
R131	1-247-113-00	CARBON	180	5%	1/4W
R132	1-247-145-00	CARBON	3.9K	5%	1/4W
R133	1-247-107-00	CARBON	100	5%	1/4W
R134	1-247-155-00	CARBON	10K	5%	1/4W
R136	1-247-142-00	CARBON	3K	5%	1/4W
R137	1-246-460-00	CARBON	300	5%	1/4W
R140	1-247-863-00	CARBON	22K	5%	1/6W
R141	1-247-863-00	CARBON	22K	5%	1/6W
R142	1-247-863-00	CARBON	22K	5%	1/6W
R143	1-247-131-00	CARBON	1K	5%	1/4W
R144	1-247-147-00	CARBON	4.7K	5%	1/4W
R145	1-247-131-00	CARBON	1K	5%	1/4W
R146	1-247-147-00	CARBON	4.7K	5%	1/4W
R150	1-214-756-00	METAL	13K	1%	1/4W
R151	1-214-104-00	METAL	68	1%	1/4W
R152	1-214-780-00	METAL	130K	1%	1/4W
R153	1-214-746-00	METAL	5.1K	1%	1/4W
R154	1-247-163-00	CARBON	22K	5%	1/4W
R155	1-214-737-00	METAL	2.2K	1%	1/4W
R156	1-214-739-00	METAL	2.7K	1%	1/4W
R157	1-214-785-00	METAL	220K	1%	1/4W
R158	1-214-729-00	METAL	1K	1%	1/4W
R159	1-247-147-00	CARBON	4.7K	5%	1/4W
R160	1-246-529-00	CARBON	220K	5%	1/4W
R161	1-214-729-00	METAL	1K	1%	1/4W
R162	1-214-760-00	METAL	20K	1%	1/4W
R163	1-247-145-00	CARBON	3.9K	5%	1/4W
R164	1-247-170-00	CARBON	43K	5%	1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R165	1-247-170-00	CARBON	43K	5%	1/4W	
R166	1-247-142-00	CARBON	3K	5%	1/4W	
R167	1-247-171-00	CARBON	47K	5%	1/4W	
R168	1-247-091-00	CARBON	22	5%	1/4W	
R169	1-247-173-00	CARBON	56K	5%	1/4W	
R170	1-247-847-00	CARBON	4.7K	5%	1/6W	
R177	1-247-155-00	CARBON	10K	5%	1/4W	
R178	1-247-131-00	CARBON	1K	5%	1/4W	
R179	1-214-753-00	METAL	10K	1%	1/4W	
R180	1-247-163-00	CARBON	22K	5%	1/4W	
R181	1-247-125-00	CARBON	560	5%	1/4W	
R182	1-247-171-00	CARBON	47K	5%	1/4W	
R183	1-246-533-00	CARBON	330K	5%	1/4W	
R184	1-247-111-00	CARBON	150	5%	1/4W	
R301	1-247-155-00	CARBON	10K	5%	1/4W	
R302	1-214-777-00	METAL	100K	1%	1/4W	
R304	1-247-155-00	CARBON	10K	5%	1/4W	
R305	1-247-871-00	CARBON	47K	5%	1/6W	
R306	1-247-871-00	CARBON	47K	5%	1/6W	
R307	1-247-871-00	CARBON	47K	5%	1/6W	
R308	1-247-155-00	CARBON	10K	5%	1/4W	
R310	1-247-091-00	CARBON	22	5%	1/4W	
R311	1-247-161-00	CARBON	18K	5%	1/4W	
R313	1-247-161-00	CARBON	18K	5%	1/4W	
R314	1-246-460-00	CARBON	300	5%	1/4W	
R315	1-247-115-00	CARBON	220	5%	1/4W	
R316	1-247-162-00	CARBON	20K	5%	1/4W	
R317	1-247-145-00	CARBON	3.9K	5%	1/4W	
R318	1-247-847-00	CARBON	4.7K	5%	1/6W	
R320	1-247-145-00	CARBON	3.9K	5%	1/4W	
R321	1-247-155-00	CARBON	10K	5%	1/4W	
R322	1-247-155-00	CARBON	10K	5%	1/4W	
R323	1-249-459-11	CARBON	12K	5%	1/4W	
R324	1-247-131-00	CARBON	1K	5%	1/4W	
R325	1-247-155-00	CARBON	10K	5%	1/4W	
R326	1-247-165-00	CARBON	27K	5%	1/4W	
R327	1-247-165-00	CARBON	27K	5%	1/4W	
R328	⚠.1-212-853-00	FUSIBLE	6.8	5%	1/4W	F
R330	1-247-143-00	CARBON	3.3K	5%	1/4W	
R331	1-247-147-00	CARBON	4.7K	5%	1/4W	
R332	1-247-155-00	CARBON	10K	5%	1/4W	
R340	1-247-855-00	CARBON	10K	5%	1/6W	
R341	1-247-855-00	CARBON	10K	5%	1/6W	
R342	1-247-855-00	CARBON	10K	5%	1/6W	
R343	1-247-155-00	CARBON	10K	5%	1/4W	
R344	1-247-855-00	CARBON	10K	5%	1/6W	
R345	1-247-847-00	CARBON	4.7K	5%	1/6W	
R352	1-247-171-00	CARBON	47K	5%	1/4W	
R360	1-247-171-00	CARBON	47K	5%	1/4W	
R380	1-247-107-00	CARBON	100	5%	1/4W	
R381	1-247-107-00	CARBON	100	5%	1/4W	
R392	1-247-107-00	CARBON	100	5%	1/4W	
R393	1-247-107-00	CARBON	100	5%	1/4W	
R396	1-247-155-00	CARBON	10K	5%	1/4W	
R397	1-247-171-00	CARBON	47K	5%	1/4W	
R398	1-247-855-00	CARBON	10K	5%	1/6W	
R399	1-247-171-00	CARBON	47K	5%	1/4W	
R401	1-247-171-00	CARBON	47K	5%	1/4W	
R402	1-247-171-00	CARBON	47K	5%	1/4W	
R403	1-247-147-00	CARBON	4.7K	5%	1/4W	
R404	1-247-147-00	CARBON	4.7K	5%	1/4W	
R405	1-214-729-00	METAL	1K	1%	1/4W	
R406	1-214-711-00	METAL	180	1%	1/4W	
R407	1-214-729-00	METAL	1K	1%	1/4W	
R408	1-214-711-00	METAL	180	1%	1/4W	
R409	1-247-131-00	CARBON	1K	5%	1/4W	
R410	1-247-131-00	CARBON	1K	5%	1/4W	
R411	1-247-147-00	CARBON	4.7K	5%	1/4W	
R412	1-247-147-00	CARBON	4.7K	5%	1/4W	
R501	⚠.1-213-046-00	FUSIBLE	2.7	5%	1W	F
R503	⚠.1-212-978-51	FUSIBLE	68	5%	1/2W	F
R504	⚠.1-217-389-00	FUSIBLE	15	5%	1/4W	F
R505	⚠.1-212-863-00	FUSIBLE	18	5%	1/4W	F
R506	1-247-831-00	CARBON	1K	5%	1/6W	
R507	1-247-831-00	CARBON	1K	5%	1/6W	
R508	1-247-831-00	CARBON	1K	5%	1/6W	
R509	1-247-831-00	CARBON	1K	5%	1/6W	
R510	1-247-825-00	CARBON	560	5%	1/6W	
R511	1-247-855-00	CARBON	10K	5%	1/6W	
R515	1-247-855-00	CARBON	10K	5%	1/6W	
R516	1-247-147-00	CARBON	4.7K	5%	1/4W	
R521	1-247-847-00	CARBON	4.7K	5%	1/6W	
R522	1-247-813-00	CARBON	180	5%	1/6W	
R523	1-247-867-00	CARBON	33K	5%	1/6W	
R524	1-247-867-00	CARBON	33K	5%	1/6W	
R525	1-247-847-00	CARBON	4.7K	5%	1/6W	
R531	1-247-903-00	CARBON	1M	5%	1/6W	
R532	1-247-841-00	CARBON	2.7K	5%	1/6W	
R533	1-247-861-00	CARBON	18K	5%	1/6W	
R534	1-247-857-00	CARBON	12K	5%	1/6W	
R535	1-247-861-00	CARBON	18K	5%	1/6W	
R536	1-247-783-00	CARBON	10	5%	1/6W	
R537	1-247-807-00	CARBON	100	5%	1/6W	
R538	1-247-855-00	CARBON	10K	5%	1/6W	
R540	1-247-871-00	CARBON	47K	5%	1/6W	
R541	1-247-855-00	CARBON	10K	5%	1/6W	
R542	1-247-863-00	CARBON	22K	5%	1/6W	
R543	1-247-863-00	CARBON	22K	5%	1/6W	
R544	1-247-863-00	CARBON	22K	5%	1/6W	
R545	1-247-863-00	CARBON	22K	5%	1/6W	
R546	1-247-863-00	CARBON	22K	5%	1/6W	
R547	1-247-863-00	CARBON	22K	5%	1/6W	
R548	1-247-863-00	CARBON	22K	5%	1/6W	
R549	1-247-863-00	CARBON	22K	5%	1/6W	
R551	1-247-855-00	CARBON	10K	5%	1/6W	
R552	1-247-855-00	CARBON	10K	5%	1/6W	
R553	1-247-831-00	CARBON	1K	5%	1/6W	
R554	1-247-831-00	CARBON	1K	5%	1/6W	
R555	1-247-831-00	CARBON	1K	5%	1/6W	
R556	1-247-831-00	CARBON	1K	5%	1/6W	
R557	1-247-855-00	CARBON	10K	5%	1/6W	

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ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R558	1-247-855-00	CARBON	10K	5%	1/6W	
R561 ⚠	1-206-473-00	METAL OXIDE	27	5%	2W	F
R562 ⚠	1-206-439-00	METAL OXIDE	1	5%	2W	F
R563 ⚠	1-206-463-00	METAL OXIDE	10	5%	2W	F
R564	1-247-871-00	CARBON	47K	5%	1/6W	
R565	1-247-143-00	CARBON	3.3K	5%	1/4W	
R566	1-247-871-00	CARBON	47K	5%	1/6W	
R567	1-247-831-00	CARBON	1K	5%	1/6W	
R568	1-247-871-00	CARBON	47K	5%	1/6W	
R569	1-247-143-00	CARBON	3.3K	5%	1/4W	
R570	1-247-871-00	CARBON	47K	5%	1/6W	
R571	1-247-831-00	CARBON	1K	5%	1/6W	
R572	1-247-871-00	CARBON	47K	5%	1/6W	
R573	1-247-831-00	CARBON	1K	5%	1/6W	
R581	1-247-879-00	CARBON	100K	5%	1/6W	
R582	1-247-903-00	CARBON	1M	5%	1/6W	
R583	1-247-847-00	CARBON	4.7K	5%	1/6W	
R584	1-249-421-11	CARBON	2.2K	5%	1/6W	
R585	1-247-863-00	CARBON	22K	5%	1/6W	
R586	1-247-863-00	CARBON	22K	5%	1/6W	
R587	1-247-863-00	CARBON	22K	5%	1/6W	
R588	1-247-863-00	CARBON	22K	5%	1/6W	
R589	1-247-879-00	CARBON	100K	5%	1/6W	
R590	1-247-879-00	CARBON	100K	5%	1/6W	
R591	1-247-831-00	CARBON	1K	5%	1/6W	
R601	1-247-831-00	CARBON	1K	5%	1/6W	
R602	1-247-831-00	CARBON	1K	5%	1/6W	
R603	1-247-831-00	CARBON	1K	5%	1/6W	
R604	1-247-831-00	CARBON	1K	5%	1/6W	
R605	1-247-831-00	CARBON	1K	5%	1/6W	
R606	1-247-831-00	CARBON	1K	5%	1/6W	
R607	1-247-831-00	CARBON	1K	5%	1/6W	
R608	1-247-831-00	CARBON	1K	5%	1/6W	
R609	1-247-831-00	CARBON	1K	5%	1/6W	
R610	1-247-815-00	CARBON	220	5%	1/6W	
R611	1-247-817-00	CARBON	270	5%	1/6W	
R612	1-247-817-00	CARBON	270	5%	1/6W	
R613	1-247-819-00	CARBON	330	5%	1/6W	
R614	1-247-819-00	CARBON	330	5%	1/6W	
R621	1-247-810-00	CARBON	130	5%	1/6W	
R622	1-247-835-00	CARBON	1.5K	5%	1/6W	
R623	1-247-843-00	CARBON	3.3K	5%	1/6W	
R624	1-247-855-00	CARBON	10K	5%	1/6W	
R625	1-247-855-00	CARBON	10K	5%	1/6W	
R626	1-247-872-00	CARBON	51K	5%	1/6W	
R627	1-247-872-00	CARBON	51K	5%	1/6W	
R628	1-247-847-00	CARBON	4.7K	5%	1/6W	
R629	1-247-855-00	CARBON	10K	5%	1/6W	
R630	1-247-855-00	CARBON	10K	5%	1/6W	
R631	1-247-815-00	CARBON	220	5%	1/6W	
R701	1-247-879-00	CARBON	100K	5%	1/6W	
R702	1-247-879-00	CARBON	100K	5%	1/6W	
R703	1-247-879-00	CARBON	100K	5%	1/6W	
R704	1-247-879-00	CARBON	100K	5%	1/6W	

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ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R705	1-247-879-00	CARBON	100K	5%	1/6W
R706	1-247-879-00	CARBON	100K	5%	1/6W
R707	1-247-879-00	CARBON	100K	5%	1/6W
R708	1-247-879-00	CARBON	100K	5%	1/6W
R709	1-247-879-00	CARBON	100K	5%	1/6W
R710	1-247-879-00	CARBON	100K	5%	1/6W
R711	1-247-879-00	CARBON	100K	5%	1/6W
R712	1-247-879-00	CARBON	100K	5%	1/6W
R713	1-247-879-00	CARBON	100K	5%	1/6W
R714	1-247-879-00	CARBON	100K	5%	1/6W
R730	1-215-452-00	METAL	20K	1%	1/6W
R731	1-215-452-00	METAL	20K	1%	1/6W
R732	1-215-452-00	METAL	20K	1%	1/6W
R733	1-215-452-00	METAL	20K	1%	1/6W
R734	1-215-452-00	METAL	20K	1%	1/6W
R735	1-215-452-00	METAL	20K	1%	1/6W
R736	1-215-452-00	METAL	20K	1%	1/6W
R737	1-215-445-00	METAL	10K	1%	1/6W
R738	1-215-445-00	METAL	10K	1%	1/6W
R739	1-215-445-00	METAL	10K	1%	1/6W
R740	1-215-445-00	METAL	10K	1%	1/6W
R741	1-215-445-00	METAL	10K	1%	1/6W
R742	1-215-445-00	METAL	10K	1%	1/6W
R743	1-215-460-00	METAL	43K	1%	1/6W
R744	1-215-425-00	METAL	1.5K	1%	1/6W
R745	1-247-847-00	CARBON	4.7K	5%	1/6W
R746	1-247-847-00	CARBON	4.7K	5%	1/6W
R750	1-247-863-00	CARBON	22K	5%	1/6W
R761	1-249-421-11	CARBON	2.2K	5%	1/6W
R762	1-247-823-00	CARBON	470	5%	1/6W
R763	1-247-823-00	CARBON	470	5%	1/6W
R771	1-247-831-00	CARBON	1K	5%	1/6W
R772	1-247-863-00	CARBON	22K	5%	1/6W
R773	1-247-831-00	CARBON	1K	5%	1/6W
R774	1-247-863-00	CARBON	22K	5%	1/6W
RV101	1-230-768-11	RES, VAR, CARBON 20K/20K			
RV102	1-230-769-11	RES, VAR, CARBON 10K/10K			
RV103	1-224-252-XX	RES, ADJ, METAL GLAZE 10K			
RV106	1-228-994-00	RES, ADJ, CARBON 10K			
RV150	1-224-252-XX	RES, ADJ, METAL GLAZE 10K			
RV160	1-228-994-00	RES, ADJ, CARBON 10K			
RV310	1-228-989-00	RES, ADJ, CARBON 470			
RV380	1-230-770-12	RES, VAR, CARBON 20K/20K			
RV621	1-228-994-00	RES, ADJ, CARBON 10K			
RY301	1-515-473-00	RELAY			
RY302	1-515-473-00	RELAY			
S001 ⚠	1-553-318-00	SWITCH, PUSH (AC POWER)(1 KEY)			
S301	1-570-180-11	SWITCH, PUSH (3 KEY)(DOLBY NR/MPX FILTER)			
S601	1-553-856-00	SWITCH, KEY BOARD (PAUSE)			
S602	1-553-856-00	SWITCH, KEY BOARD (REC MUTE)			
S603	1-553-856-00	SWITCH, KEY BOARD (REC)			
S604	1-553-856-00	SWITCH, KEY BOARD (FF)			
S605	1-553-856-00	SWITCH, KEY BOARD (FWD)			
S606	1-553-856-00	SWITCH, KEY BOARD (STOP)			
S607	1-553-856-00	SWITCH, KEY BOARD (REV)			
S608	1-553-856-00	SWITCH, KEY BOARD (REW)			

ELECTRICAL PARTS

Ref.No.	Part No.	Description
S609	1-553-856-00	SWITCH, KEY BOARD (CAL)
S610	1-553-856-00	SWITCH, KEY BOARD (TAPE OPR)
S611	1-554-208-00	SWITCH, SLIDE (TIMER)
S612	1-570-179-11	SWITCH, PUSH (3 KEY)(DIRECTION)
S771	1-553-856-00	SWITCH, KEY BOARD (MEMORY)
S772	1-553-856-00	SWITCH, KEY BOARD (RESET)
S1001	1-554-205-00	SWITCH, PUSH
S1002	1-554-205-00	SWITCH, PUSH
S1003	1-554-205-00	SWITCH, PUSH
S1004	1-554-205-00	SWITCH, PUSH
S1005	1-554-205-00	SWITCH, PUSH
S1006	1-516-323-XX	SLIDE SWITCH
T001 ⚠.	1-448-104-11	(US,Canadian)...TRANSFORMER, POWER
T001 ⚠.	1-448-105-11	(AEP,G-AEP).....TRANSFORMER, POWER
T001 ⚠.	1-448-106-11	(E).............TRANSFORMER, POWER
T301	1-433-283-11	TRANSFORMER, BIAS OSCILLATION
TP2	*1-560-060-00	PIN, CONNECTOR 2P
TP3	*1-560-061-00	PIN, CONNECTOR 3P
VS001⚠.	1-526-576-51	(E)...SELECTOR, POWER VOLTAGE
X531	1-527-532-00	OSCILLATOR, CERAMIC
X581	1-567-160-00	OSCILLATOR, CERAMIC

ACCESSORY & PACKING MATERIAL

Part No.	Description
1-551-734-11	CORD, CONNECTION (RK-74A)
1-556-372-41	CORD, CONNECTION (4 CORE)
3-315-149-00	CUSHION (LEFT), LOWER
3-315-150-00	CUSHION (RIGHT), LOWER
3-315-151-00	CUSHION (LEFT), UPPER
3-315-152-00	CUSHION (RIGHT), UPPER
3-324-801-11	(US,Canadian,AEP,G-AEP)...INDIVIDUAL CARTON
3-324-801-21	(E)............INDIVIDUAL CARTON
3-701-630-00	BAG, POLYETHYLENE
3-760-311-11	(US,Canadian,AEP,E)...MANUAL, INSTRUCTION
3-760-311-41	(AEP).................MANUAL, INSTRUCTION
4-876-352-00	SHEET, PROTECTION
X-3324-801-1	(G-AEP,E)...CARD ASSY, WARRANTY (TYPE A)

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